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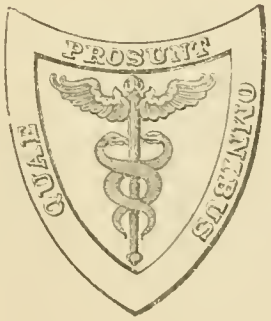
MEDICAL NEWS.

A Weekly Medical Journal.

VOLUME LIII.

JULY—DECEMBER, 1888.



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American Surgical Association.
Association of American Obstetricians and Gynecologists.
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Congress of American Physicians and Surgeons.
Congress of Tuberculosis of Man and Animals.
Gynecological Society of Chicago.
Montreal Medico-Chirurgical Society.
New York Academy of Medicine.
New York County Medical Association.
New York Neurological Association.
Obstetrical Society of Philadelphia.
Ontario Medical Association.
Philadelphia Academy of Surgery.
Philadelphia County Medical Society.
Philadelphia Neurological Society.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, JULY 7, 1888. NO. 1.

ORIGINAL LECTURES.

MASTURBATION.

A Clinical Lecture.

BY LAWSON TAIT, M.D., F.R.C.S.,
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THIS painful subject is usually involved in such mystery, and spoken of so seldom and so incompletely by medical authorities, that it is by no means easy to determine to what extent it prevails, how to discriminate its victims or how to suggest a remedy. When discovered in a school, or in a family, it strikes everybody with such horror that it is at once concealed and hushed up, instead of being treated, as it always ought to be, as a disease; and the unfortunate children who are discovered in the practice are regarded by their discoverers as having sunk to the lowest moral depths.

It is a sad misfortune that all sexual questions are so completely hidden from children at puberty that they are driven to make discoveries for themselves, often with disastrous results. One of the greatest practical results of the discovery of Mr. Darwin of the descent of man from the animals which have gone before him is that by it the sexual instincts, or, as they are generally and most unfortunately termed, the sexual passions, are shown to be the most necessary, as well as the most prevalent of all the instincts which have been evolved by the necessities of animal existence. We might just as reasonably speak of the respiratory passion or the circulatory passion. Respiration and the circulation of the blood are essential to animal existence. As those with the best breathing, and those with the best blood circulation necessarily have, under certain circumstances, the best chance of survival in the struggle, so do those with the best capacity for procreation serve their purpose in the struggle for the maintenance of the race, of the species, of the great chain of life itself. All the most pronounced organs adapted for struggle are directed toward sexual success. The sexual instinct has thus become everywhere in the scheme of creation the great weapon of evolution. That it should be curbed, properly restrained and judiciously directed is now one of the great objects of civilization—an object to be aided in every good and wholesome way. But I doubt very much if some of the methods employed for this purpose are judicious.

The female organism has always been merely the vehicle for the maturation of the ovum, and for the receptacle of the fertilizing influence of the male; being, in fact, what we may call the passive factor in the reproductive act. For her part of the process, then, only enough of sexual passion or instinct is required to indicate to the male the stage at which his share may be effectually performed. For the male, on the contrary, a constant tendency to aggression is necessary, that he may be in readiness at the time required.

Further, the struggle for the survival of the fittest has constantly been carried out in its chiefest severity amongst the males of all animals, and only partially amongst the females; so that it has come to be that the physically fittest has necessarily been also the sexually most powerful. This requires no proof, for it is demonstrated by the enormous prices given by breeders of all animals for the best males compared with the prices obtained for the best females. In fact, through countless generations of all animals, the sexual instinct, above all others, has been developed in the males by the constant elimination of the least fit, and the subsequent success of the sexually fittest. Every provision of weapon, offensive or defensive, from the spur of the cock to the tooth of the tiger, has its primary object in enabling its possessor to compete successfully in the sexual struggle. Even in civilized life, the chief desire to possess wealth seems to be to make a good marriage, and the daughters of our race walk off with the most successful (that is, the wealthiest) suitors, much as the tigress walks off with the victorious male. It ought to be, therefore, no matter of surprise that in the human race the sexual instinct is very powerful in man, and comparatively weak in woman.

Another matter must here be also noticed. The females of all animals resist the advances of immature males for the reason that the struggles of the fittest has taught the races that the offspring of such advances are less fit for survival than the offspring of the mature male. Any one who has kept poultry must have noticed how soon cockerels make advances to hens, and how persistently the latter refuse them, and how they punish the cockerels for the attempts until their perfect maturity has been attained. Considering these two great facts in animal life, it is not surprising, then, that masturbation is very common among boys and comparatively rare among girls. Indeed, if we are to believe some authors, and I must say I am inclined so to do, boys always discover the practice for themselves, and very few of them are free from it. I am quite certain, on the other hand, that it is relatively rare amongst girls, and that it is generally the result of direct contamination. Sometimes, however, they discover it, for I have met with two instances of children, almost infants, one being only four years of age and the other six, where it was absolutely impossible that it could have been communicated to them, and in both of whom it was found to be utterly impossible to check it. They were both of defective intellects, a condition which I regarded as the cause of the masturbation rather than, as might be more generally held, that the vice was the cause of the deficiency. I look upon it, in fact, as a reversal of moral type, for no one can ever have watched the habits of monkeys without having discovered that masturbation is almost universal among them in confinement. Whether it may be practised by them in their native woods is not yet known, but I fancy that it is rather the result of their luxurious life, their

freedom from the strain of earning an honest livelihood in the native circumstances of their wild life. Idleness and luxury are always provocative of lust in monkeys as in men.

Between the period of puberty and the time when young members of the human race may legitimately follow out their instinctive tendencies, there are a number of years during which the male glands are active and troublesome, and the males discover a method of relief. No such relief is wanted for the female glands, for they discharge their products without it. But if the rudimentary instinct be once directed into this artificial element, it is often carried to great excess, and there can be no doubt that much mischief is sometimes done to the economy. The most pernicious effects are met with when the contamination reaches a congregation of young women, as in a girls' school. I have been consulted concerning epidemics of this kind, both in boys' and girls' schools, and have always found the chief difficulty to be that of persuading those having charge of the schools that the practice was a physical delinquency rather than a moral evil, and that the best remedy was not to tell the poor children that they were damning their souls, but to tell them that they might seriously hurt their bodies, and to explain to them the nature and purport of the functions they were abusing. In one instance, the head of a very large girls' school took my advice on this subject, with the best results.

The evil effects of masturbation have been greatly overrated, thanks to a reticence on the part of those who know all about it, and this has permitted a disagreeable subject to fall into the hands of those who live by trading on the ignorance and misfortunes of their fellow-beings. In the case of men, it may, and often does, result in serious mischief, especially to those of weakly constitution. In women, I believe, it is not often carried to such an extreme as to do any harm, though I have met with cases in which serious injury has resulted; and I am quite certain that girls may almost always be induced to give up the practice, when a reasonable explanation is afforded to them of the risks attached to it. I have had under my care a lady, who was educated in a convent in Belgium, where, according to her statement, the practice was prevalent, and where she was initiated into it at fourteen years of age. She voluntarily informed me that she has continued it ever since, though she has married and borne several children. She is now nearly forty years of age, and enjoys robust health.

But there is another class of cases well illustrated by two patients whom I have watched for some years. They are both slightly built, and rather delicate blondes. They were both corrupted at school early in life. In one of them, an immoderate indulgence at a menstrual period brought on an hæmatocele, which has ever since been a source of ill health, and has rendered her married life infertile. In the other, a similar excess soon after marriage induced a miscarriage, a repetition of her indulgence excited an hæmatocele with perimetritis, and to the same cause, I am sorry to say, we are obliged to attribute recurrent inflammatory attacks, which render her a chronic invalid. In neither of these cases has advice been of the slightest use, even though couched in terms of the strongest kind; but I am bound to say that such a disappointing result is very unusual.

The method of practising the vice is usually by the finger, but devices of a still more mischievous character have come under my notice. In young children, masturbation is often associated with defective mental development, and it should always be a ground for placing them under special care. In all establishments where the young of either sex are congregated the system of separated cubicles should be employed; and children ought never to be allowed, under any circumstances whatever, to sleep with servants. In every instance where I have known a number of children to be affected, the contagion has been traced to a servant.

I think it possible that, in some inveterate cases, clitoridectomy might be beneficial, but I have never tried it save in one instance. It is certainly the case, as I have elsewhere said, that the chief point of local excitement in the sexual act is in the clitoris, and a recognition of this fact involves a very strange and most discreditable piece of surgical history.

Some thirty years ago, there lived and flourished in London a surgeon of great ability, Mr. Baker Brown, whose influence in the history of ovariotomy will be displayed in its appropriate place. Mr. Baker Brown was not a very accurate observer, nor a logical reasoner. He found that a number of semi-demented epileptics were habitual masturbators, and that the masturbation was, in women, chiefly effected by excitement of the mucous membrane on and around the clitoris. Jumping over two grave omissions in the syllogism, and putting the cart altogether before the horse, he arrived at the conclusion that removal of the clitoris would stop the pernicious habit, and therefore cure the epilepsy. He operated in an enormous number of cases, for epilepsy is very common, and patients and their guardians will submit to almost anything which promises a hope of relief. There can be no doubt that many cases were temporarily benefited, just as cases of epilepsy are benefited for a while by castration (in the male), removal of the uterine appendages (in women), and trephining (in both sexes). Besides, Mr. Baker Brown's operations had no mortality, and the reduction of the sexual distemper of a number of epileptics, even for a while, or to some extent, was of itself a benefit. But Mr. Brown carried his efforts to a most injudicious extent, due to the fact that he was suffering from very extensive cerebral softening, and really was incapable of forming a sound judgment. His subsequent illness and death proved this, and I have a large amount of documentary evidence in my possession, which some day will see the light, which will place the terrible story of this most unfortunate man in a light altogether different from that in which it has hitherto been regarded.

As a result of the disease from which he suffered, he resisted the advices of his colleagues and the committee of his hospital, and he ran his hobby till he got into trouble with the Commissioners of Lunacy for a technical infringement of the conditions under which lunatics may be detained in places not licensed for their reception. This would have been of little consequence had he not been a successful ovariotomist, and had he not been pursued by a rival as relentless as he was cruel and persevering. The authorities of the Obstetrical Society were induced to take up the matter, and Mr. Baker Brown was expelled from the Society, a large part of the evidence against him being furnished from the common-

place book of a rival who seemed to have been dogging his steps for years.

Calmly regarded now, after the lapse of twenty years, Mr. Baker Brown's ruin is a matter of regret. The voices of his colleagues, who knew the diseased condition of his brain, ought to have had greater weight with his professional judges, and milder measures ought to have been adopted, measures less likely to bring scandal and discredit on the profession to which Mr. Baker Brown was a distinguished ornament. This, I predict, will be the judgment of another generation, when all the actors in the drama are gone from amongst us.

One disastrous result came from the decision of the Obstetrical Society at once, as might have been expected. The operation of clitoridectomy as a means of mitigating a depraved sexual appetite was absolutely discarded, and I have never heard a surgeon say he had performed it since 1867. Yet I am certain that in many cases it would be useful. I have performed it once, in a case where it was suggested by Dr. Thursfield, of Bridgworth, for reasons altogether too disgusting for publication. The following letter from Dr. Thursfield, two years after the operation, completely justifies his suggestion and my carrying it out:

"You will remember I told you, a few months after the operation, that she was dreadfully depressed in spirits and annoyed that she had submitted to it; soon afterward she became better in health and strength, and now, I am glad to say, she is improved morally and physically.

"She is nurse, companion and governess to her sister's children; and when I saw her, a month back, at first I did not recognize her, she was so bright and cheerful in manner and appearance; my opinion of her case is, that the operation has saved her from suicide or the asylum, and I believe she will be, instead of an encumbrance and anxiety to her friends, a comfort and help."

ORIGINAL ARTICLES.

TWO CASES OF GLOSSY SKIN, WITH CAUSALGIA FOLLOWING INJURY OF THE NERVES.

By THOMAS D. DUNN, M.D.,
of West Chester, Pa.

Case I.—Mrs. H., aged seventy-nine, fell on the 9th of July, 1887, and sustained a fracture of the neck of the left thigh. By great effort, after the accident, she succeeded in dragging herself to the second story and into bed. It was twenty-four hours before I was summoned. During that period she suffered intense pain, but thought the injury nothing more than a sprain which would soon improve with rest. There was considerable swelling around the hip-joint, and about two inches of shortening. The reduction of the fracture was easy and afforded the patient immediate relief. The dressing consisted of the ordinary extension by a weight attached to adhesive straps applied to either side of the leg below the knee and held by a roller bandage; counter-extension by elevating the foot of the bed, and lateral support by a short sand-bag to the inner side of the leg and thigh, and a long one extending from the foot to the axilla.

For a few days the limb was comfortable, but the patient suffered greatly from her back, and fearing bedsores might complicate matters, the Nathan R. Smith apparatus was substituted to enable her, by swinging the limb, to move about the bed. This induced so much suffering of the foot and thigh that the former dressing was re-applied.

About four weeks after the injury she began to complain of pain below the knee, which was greatest over the dorsum of the foot. This gradually became worse, and in two weeks was so severe that the extension apparatus was removed. She described it as a horrible, burning pain, never entirely ceasing during waking hours. It was as severe at night as during the day, and for weeks she secured very little sleep. There were occasional remissions of pain but never complete ease. Hyperæsthesia was as intense as the pain—the slightest touch causing increased suffering and twitching of the muscles. This supersensitiveness extended from the knee to the tips of the toes, but was greatest along the spine of the tibia and over the dorsum of the foot. There were also almost constant muscular movements of the foot, which were greatest at the periods of greatest suffering. She could not bear the weight of a sheet. The extensors of the foot were in a state of tonic spasm, causing a more or less pointed toe. Pressure over the sciatic nerve between the tuberosity of the ischium and great trochanter aggravated both pain and muscular twitching.

About six weeks from the date of injury a peculiar glossy condition of the skin appeared. It looked as though it had been polished or varnished and was destitute of hairs. In appearance it was mottled in patches, the color varying from natural to purple and mahogany-red. The epithelium was in places partially lost, leaving the cutis exposed. There were no wrinkles. The surface was so smooth and shiny that the reflection of bodies held near it was distinctly seen. Several crops of vesicular eczema appeared in patches during the intensity of the disease, which were attended by slight amelioration of the pain. Both the pain and hyperæsthesia reached their height during the fifth week, and then gradually lessened, but did not entirely disappear for three or four months.

After the climax of the disease was reached the vesicular eruption ceased, but the glossy skin remained for nearly four months undiminished, and at the present time, ten months after the injury, has not completely disappeared. There was from the first some swelling of the ankle, which has not entirely subsided.

An interesting feature of this case, showing the disturbance of nutrition, is the arrest of the growth of the nails of the left foot for almost ten months.

The suffering in this case was the most unmanageable that I have met. No local application, except fomentations of hot water, afforded the slightest relief, and they very little. Ointments of morphia, atropia, aconitia and lead, many anodyne liniments and fomentations were tried and abandoned as valueless in controlling the horrible pain. Counter-irritation over the inflamed joint was resorted to without perceptible benefit. The patient was opposed to the internal use of anodynes, and bore her suffering with the greatest fortitude for weeks. This peculiar condition of the skin is explained by a local neuritis of the sciatic nerve near the injured joint.

Case II.—J. B., colored, male, aged fifty-six, was injured in the explosion at the West Chester Electric Light Works, December 14, 1887. His injuries consisted of several lacerated and contused wounds of the scalp, face and legs. These were inflicted by bricks from the falling smoke-stack, and were filled with mortar. There were also several superficial burns from hot brick. After thorough cleansing and dressing with iodol and carbolized gauze, the wounds healed without delay, except one on the outer side of the right leg, an inch below the head of the fibula, which remained tender, and was a week later in healing than the others.

About two weeks after this wound closed, the man began to complain of a burning pain in the outer side and front of the leg, extending over the back of the foot and toes. The greatest suffering was at the bend of the ankle, where bullæ formed. They contained bloody serum, and left ulcerated surfaces which soon healed, to be followed by other vesicular patches. The skin over this region was thin, shiny, very smooth, free from hairs, and mottled, varying in hue from a light to a dark brown. It was very sensitive to the touch, and local applications afforded no perceptible relief. Anodynes were administered to secure rest, but with imperfect results. As soon as these patches began to discharge their bloody serum the pain diminished. By March 1st the pain had partially subsided, but the eczematous crops still recurred. April 1st the pain and eruption had disappeared, but the skin had lost none of its glossiness. There was some swelling of the part, but none of the muscular twitching that formed so distressing a feature of the former case.

The disease was limited to the distribution of the peroneal nerve, and was doubtless due to a neuritis—the result of the injury previously described. In the former case the sciatic nerve was injured by the broken femur, which must have been greatly displaced by the patient's effort in going up-stairs. Injury to a great nerve in fracture of the thigh is rare. Dr. Mitchell says (*Injuries of Nerves*): "As regards the femur, lesions grave enough to break and displace fragments from one end of the bone so as to injure a great nerve are rarely seen except as the result of machine or railway injuries. He relates a case of double fracture of the neck of the femur, reported by Mr. Swan. The patient survived two months. 'There was intense pain which proved to have been due to direct injury to the sciatic nerve by the broken bone.'"

Drs. Morehead, Mitchell and Keen, in the *Report of the United States Hospital for Nervous Diseases*, give an excellent description of glossy skin. Previous to this report, Sir James Paget distinctly described this peculiar condition of the skin, and it had been noted as early as 1810 by Mr. Alex. Denmark. An exhaustive description of the malady may be found in Dr. Mitchell's *Injuries of Nerves*.

DIETETIC MANAGEMENT OF THE SUMMER DIARRHŒA OF INFANTS.[1]

By ARTHUR V. MEIGS, M.D.,
physician to the Pennsylvania Hospital and to the Children's Hospital.

It was with much pleasure that I accepted the flattering invitation of your Chairman to be present and participate in the discussion of the very interesting question of this evening, though I confess I feel some trepidation when I contemplate the task I undertake, for I fear what I shall say may not coincide with the opinions held by many of my hearers, and yet, having undertaken to give my views, I cannot, in honesty, avoid what seems to me perhaps the most important of all questions connected with the subject—the use of milk. For only by free discussion, with the outspoken expression of conflicting opinions to sift the various views and rouse interest in the subject, can the real truth be reached. The question is one to which I have given a good deal of attention, both from its practical and its theoretical aspect, having had for a number of years a large experience in the treatment of the disease amongst the poorer classes, while connected with the out-door department of the Children's Hospital of Philadelphia, beside attending a fair number of cases in private practice, and for two or three years I bestowed a large share of my leisure time upon a study of the chemical analysis of human and cow's milk. According to my understanding of my subject, it was not intended that I should confine myself to a discussion of the dietetic management of acute cholera infantum alone, but should include that of all cases of the summer diarrhœa of infants.

Perhaps I can best make plain what I wish to say by first describing what I consider proper dietetic management of the complaint, and then giving, as briefly as may be, the reasons.

When called upon to treat a case of any form of

[1] Read before the New York Academy of Medicine, Section on Pædiatrics, June 27, 1888.

summer diarrhœa, the first question to be asked is—What food has the infant been taking? If it has been nursed, we should be very careful in making any radical change, and should only do so if there is positive ground for believing that the attack is the result of some fault in the milk and not of the hygienic or atmospheric surroundings, other than those connected with the food. As yet, I am quite unable to bring myself to believe that, even in cases of acute cholera infantum, it is good practice to take away from the infant the milk of its mother, if she is a healthy woman and the child has previously thriven upon it. Therefore, as routine practice, and when there is no direct reason to suspect the milk of the nurse, I should continue to have the child suckled for its main nourishment.

As adjuvants, and very important ones, the use of water and stimulants, and perhaps some supplementary food, may be necessary. The administration of water is very useful, for often the child frets to be nursed frequently because it is thirsty, and thereby gets too much food and overtaxes its already greatly irritated stomach; whereas, if water is given, the system obtains what it really needs and nothing more; its systematic administration, therefore, should always be directed in cases of choleraic diarrhœa. In speaking of the use of stimulants, it may be thought that I am departing somewhat from my subject and trespassing upon the ground of the therapeutic management of the disease, but to me it has always seemed that stimulation in these cases is more nearly allied to dietetics than therapeutics. Such being my view, it may, perhaps, be permitted to me to say that I look upon stimulation as of the utmost importance in the severe forms of diarrhœa, and that it is well in such cases to give a teaspoonful of good brandy or whiskey in a tumblerful of water, three or four times a day (a young baby cannot often be induced to take more than this quantity in twenty-four hours, nor would it be well, except in cases of very unusual severity, to give more), or to give thirty drops in sweetened water every two hours, as may be judged best, according to the stage of the disease or indications in the individual case dealt with. In regard to the administration of other food beside that of the milk of the mother, it must first, as already said, be determined whether there is reason or not to believe that the latter is in any way faulty. If the milk of the mother is decided to be faulty, and has, therefore, been partly or wholly the cause of the attack, the nursing must at once be stopped and the infant fed artificially in the way that will presently be described under the head of the ordinary dietetic treatment of the disease for hand-fed infants. On the other hand, even when the mother's milk is, for every reason, believed to be good and to have been in no way the cause of the illness, it will often be found of advantage to give two or three times a day half an ounce of raw beef juice with a pinch of salt in it; or, again, wine whey will often be retained by an irritable stomach, and one or two ounces given two or three times a day will be found to aid in the cure.

The dietetic treatment of summer diarrhœa in hand-fed children, and in those who, having been nursed, must suddenly be weaned, because it has been decided that the mother's milk was so bad as to be no longer a fit nutriment for them, is a subject of both great importance and difficulty. If the case is one of an infant previously hand-fed, the first thing to be determined is whether the food has been in any way the cause of the attack. The sources of supply and the condition of the food, as it is found in the bottle from which the infant takes it, must be carefully investigated.

The basis of almost all foods for infants is cow's milk, and the question of their artificial feeding, both in health and disease, therefore, largely hinges upon its composition and methods of use, unless we are prepared finally to accept the new views upon the subject, which are the result of studies of the chemistry of, and the microörganisms found in milk; in which case, if we push our belief to its furthest limit, the question of the dietetic treatment of summer diarrhœa becomes a very easy one to solve, for we have only to decide upon the form of meat broth which shall be administered. As I am unable to accept the view that the best treatment in all cases of summer diarrhœa, or even of the choleraic forms, is at once to stop all milk-foods, and put the infant upon an exclusive diet of meat-broth, it becomes necessary to say something of the use of milk.

The great and cardinal principle to be remembered under all circumstances, in using cow's milk for infants, is, that it contains a much larger percentage, about three times as much, casein as does human milk, and that it must, therefore, always be diluted. The word casein is used advisedly, for it is an old term and quite as good a one by which to express the various nitrogenized principles contained in milk as any one of the newer names. Where cow's milk is diluted the amount of fatty material is reduced to less than that contained in human milk, and, therefore, something must be done to increase the quantity of this constituent, which is easily effected by the use of cream. The sugar in undiluted cow's milk even is less in amount than that in human; sugar, therefore, must be added. Lastly, and a matter of great importance, cow's milk is acid, while human milk is alkaline, and this difference should be removed. The addition of lime water is the best known means of effecting this end.

This is not the proper place, and the time is insufficient, for me now to go deeply into the arguments in regard to this subject, more especially as I have already done so in my work upon *Milk Analy-*

sis and Infant Feeding, and, therefore, it is only possible for me to give somewhat dogmatically, and without expressing the reasons, my conclusions upon what constitutes good dietetic treatment of the disease. It has been my habit in cases of diarrhœa, as well as for infants in health, to depend upon milk-foods mainly (it goes without saying, that in all instances the milk must be absolutely untainted when given to the child). The food I have recommended, and from the use of which I have had very satisfactory results, was the outcome of a study of the subject, both from the clinical and the scientific or theoretical standpoints. Clinical experience taught me that dilution, with the addition of cream, sugar and lime-water, gave good results, and when by chemical analysis I learned that such a mixture contained the same constituents as, and in almost the exact proportions in which they exist in human milk, I became entirely convinced, and the more I have pursued the subject the more satisfied have I become.

Since writing my book, I have further studied the subject, and have come upon the following method for the preparation of the food, which is easier and, therefore, better than that formerly recommended. One quart of milk is placed in a vessel, a tall narrow pitcher is best, and after standing for three hours the upper pint is slowly poured off. This contains the greater part of the fat (cream), and when the child is to be fed there should be mixed together three ounces of this cream, two ounces of lime water, and three ounces of sugar water, which must be made in the proportion of eighteen drachms of milk sugar to a pint of water. This makes eight ounces of food, which, of course, is much too large an amount for a young infant or one that is ill. If, therefore, the infant is young, only two to four ounces will be needed at each feeding, and only that quantity should be prepared, the same proportions, however, being observed and the measure used a tablespoon or dessertspoon, as the case may be. The directions given are those for the feeding of a healthy infant between two weeks and six to nine months of age, and are mentioned only to serve as a basis for what should be given those suffering with summer diarrhœa.

In infants in health, it is very important that we should take a lesson from nature, and not increase the strength of food until the child is six months to a year old; and in cases of summer diarrhœa, or if there is any threatening of it, this, I am sure, is absolutely essential, as young infants can seldom when well, and still more rarely when suffering with diarrhœa, digest without injury the large quantity of casein contained in undiluted or very slightly diluted cow's milk. The food described, therefore, serves as the basis upon which I rest my method for the dietetic treatment of the disease, and with it as a base I vary the food in many different ways to meet the needs of different cases.

Of the four things mentioned as necessary to make cow's milk a fit food for infants—to dilute, and add cream, sugar and lime-water, the least essential probably is the use of milk sugar. In cases of diarrhœa, it occasionally becomes advisable to use cane sugar, and if this is done one-third less should be used than the amount recommended of milk sugar. An excellent food for children of six months old or more, and one which has been largely and very successfully used at the Children's Hospital in cases of summer complaint, is that which was recommended by the late Dr. J. Forsyth Meigs: equal parts of milk, cream, lime water and arrowroot water (the last to be made of a teaspoonful of arrowroot flour to one pint of water), and a small quantity of cane sugar; the amount of this to be given and the frequency of the feedings to be such as the individual case requires. The addition of some starchy material or dextrin is of great advantage in many cases, whatever may be the mode of its action, whether mechanical in separating the particles of the milk, or local upon the mucous surface of the bowel, or if its absorption and assimilation has a beneficial effect. One of the best is arrowroot, and the old flour ball, made by boiling common wheat flour in a bag for many hours until it becomes hard, and then grating it, is excellent. Barley, prepared as has been recommended by Dr. Jacobi, may be found exceedingly useful. Of all the baby foods that are manufactured, the only one that has given me such results as to encourage me to persevere in its use for any great length of time and to recommend it extensively is Mellin's Food. This has in many cases proved most useful, and should be given in the proportion of a teaspoonful to four ounces of whatever milk food is being used. It has never seemed to me necessary to dissolve it separately in hot water, and I have generally had it added directly to the milk when warm, for it is readily soluble.

In some cases, excellent results will be attained by taking away all forms of milk and administering animal broths alone; but in my experience this has been the exception rather than the rule, though it is one of the expedients which should always be tried in severe cases which prove unmanageable by the ordinary methods. In my own cases, I have very commonly found that children would soon refuse their food if given soups alone, and it is almost as difficult to make a rebellious infant take what it does not want as an adult: again, many infants will vomit the soups as soon as they are given, when, on the other hand, they will take and retain some form of milk food.

It is very important, in treating this disease, that

precise directions be given with regard to how often the infant shall be fed and the quantity to be taken each time. For my own part, I believe the best results will be attained by not making much change in regard to the frequency of feeding in mild cases—that is, a young infant should be fed every two or three hours, a child of six months old five to eight times in each twenty-four hours, and older infants about four to six times daily. In severe cases, however, it is different, and the frequency of the feedings and the quantities must be quite different from what was proper in health. Experience has brought me to the conclusion that it is only in rare and exceptional cases, and then only for short periods (twenty-four or forty-eight hours at the outside), that it is either desirable or useful to administer food oftener than every two hours. The more frequent taking of food than this would seem likely to keep the digestive organs perpetually at work, or even to give them a fresh load before they have had time to dispose of the last taken. My rule, therefore, is, in severe cases, to give a small quantity of food (from half an ounce to three ounces, as it is found the stomach can retain), every two hours. If the case is very critical and collapse or some other form of sudden termination seems so imminent that something must be done, stimulants, which act quickly, will be much more to the purpose than food; as common practice, therefore, it has long seemed to me that more harm is done than good if food is given as often as every hour, or, as I have frequently seen done, every half hour.

In dealing with cases of summer diarrhœa, one of the most difficult things to avoid is the inclination, when some improvement does not show itself very soon after a change of food has been made, to change again before there has been time to ascertain what was the result. Thus, often greatly to the injury of the patient, a second change is made, and to some food not so suitable as the one just stopped, when, if the physician had waited a few hours longer, he would have found that he held the key to the situation. This difficulty is much increased by the fact that parents and nurses are almost always, and naturally so, very impatient, and, if left to themselves, wish to try everything, and then go so fast from one food to another that the possible benefit is lost. In this particular, more than any other, will a ripe experience, coupled with sound judgment on the part of the physician, stand the patient in better stead under these critical circumstances than great learning.

From what has been said, it might be supposed, perhaps, that I had never heard of the immense work that has been done in the study of the microörganisms which exist in milk, and was ignorant of the great discovery recently made of the chemical poison which is found under certain circumstances, and which has been isolated so that it can be seen and handled, thus furnishing us a reasonable explanation of what was so long incomprehensible, the fact that milk and articles of food compounded with it become, now and then, quite virulently poisonous. I should be exceedingly sorry to be thought so culpably ignorant, and it was certainly not want of knowledge that made me speak as I have done. The existence of the chemical poison in milk has been demonstrated, and no reasonable man should pretend to doubt it, and the presence of the microörganisms is equally undeniable it is, however, when we come to reason from these truths that we should proceed slowly and cautiously, and not in any instance commit the error of mistaking our theories or perhaps our conclusions for facts.

Though all that has been claimed in regard to the interdependence of these two facts and the sequence of events from cause to effect *may* be as has been said, to me it seems that the time is not yet ripe for its unqualified acceptance, as there are so very many reasons, both from the teachings of clinical experience and from the clinical difficulties to be overcome, as well as that many excellent theoretical objections occur, seeming to point strongly the other way. An argument which appears to be a very strong one, against the acceptance of the view that *all* cases of acute cholera infantum are due to microörganisms or a chemical poison or both, is that the disease does sometimes attack infants nursed by a healthy woman whose milk there is not the slightest reason to suspect of being diseased and in which the existence of neither microörganisms nor chemical poison has been demonstrated. Now, as it is beyond doubt that such cases do occur, does not the burthen of proof rest with those who make the assertion of the cause?

As practitioners, what we have to do is to meet the responsibilities and the exigencies of the various cases as they come to us, and I think that it would be no advance in our dietetic treatment that we should put all children suffering with summer diarrhœa upon an exclusively animal diet, and that, even in cases of acute cholera infantum, the accumulation of clinical evidence is as yet insufficient to make such a course proper, as a matter of ordinary practice. The use of an exclusively animal diet is by no means a new method of treatment; on the contrary, it is very old, and has been most extensively tried, and it has long been well known that certain cases, that other methods had failed to cure, would yield to it; but it is equally well known that in others, in which it was as thoroughly tried, it failed, and the cure was only effected after a return to milk diet. Now these experiments were made by men with unbiassed minds; they had no theory to uphold or pull down, and they judged the effects by the clinical results obtained, alone. And what conclusion did they reach? That in exceptional cases only the plan

succeeded, but that in the great majority of instances it failed, miserably, and they had to return to milk as their sheet-anchor.

If we drive this theory of the microörganisms being the sole cause of acute cholera infantum to its ultimate issue, in no case would a patient ever recover if the use of milk was continued, for are we not told that they continue to live and thrive in the intestines of the child? And supposing that no therapeutic remedy was administered to effect their destruction, they should grow and increase so long as supplied with the material—milk—necessary to their existence. No one would pretend to deny that many infants recover from cholera infantum upon the old diet of milk. The advocates of the theory are obliged to assume that, owing to some unexplained reason, the soil ceases to be fertile, or that under some conditions the microörganisms, which a day or two ago were active and threatened the life of the infant, have become quiescent and harmless.

For the sake of argument, let me try to put myself in the place of those who are fully convinced that cholera infantum is always due to the action of microörganisms upon milk, and that the further administration of that article of food will necessarily be very injurious to any patient suffering with the disease. I must then, of course, give only animal food; but at the very outset, the doubts and difficulties that beset me in the clinical management of my cases are enormous.

Any one who has tried to feed a diabetic upon an exclusively flesh diet knows that it is always difficult, often impossible, and with infants it is the same; many will refuse to take the broths, others will vomit them with the utmost violence as soon as swallowed; and my past experience tells me positively that some of these same infants can take and retain milk food. Now what is to be done, give the milk or hold rigidly to the routine of meat diet alone? Again, one of the most difficult points we shall be called upon to decide is: What constitutes cholera infantum, and how are we to recognize clinically the difference in cases which approach the border-line between it, at the one extreme, and simple diarrhœa with which almost all teething children suffer more or less in summer, at the other? The decision of this question will often be very difficult, and vastly important, especially in the case of nursed infants, who, if the breast is taken from them, even for a few days, often, for a variety of reasons, cannot be got back to it. Neither chemistry nor bacteriology will afford any aid in a conclusion in any individual case, the clinician being obliged to decide the point on the instant, for his patient would be dead long before the methods of the scientist would enable him to give any answer with regard to the wholesomeness of the food.

Continuing the assumption that it has been proved that microörganisms are the sole cause of cholera infantum, and conceding that all patients suffering with it must be put upon animal diet, it seems to me that we are still very far from the goal where we may sit down and say, now we have reached the end and no change from our present perfected methods need be made in the future. Is it not universally recognized that for hand-fed infants in health there is nothing so easy of digestion and of assimilation as a good milk food, and no plan of diet so successful as a well-arranged and a well-executed one of milk? It seems strange that so soon as an infant becomes ill, and still more as the disease is one of the digestive system, that we must take from it that which every one agrees is the most digestible and perfect food it can have. Certainly the science of therapeutics is lamentably imperfect, and we must never rest until a medicine is found which will so change the digestive processes or modify the milk that the microörganisms shall cease to be able to work injury, and we may again with safety give to infants suffering with this disease that of which they are sorely in need, the food which of all those in the world suits them best.

In conclusion, I can only say that I hope I have not by an expression contrary to the opinions or beliefs, or even prejudices of my hearers, offended any one, for my wish has been to give, with as great brevity as comprehensibility would allow, my opinion as to what constitutes the proper dietetic treatment of the disease, and then such reasons as struck me as most forcible in favor of the correctness of my opinion and as opposed to the contrary view, which seems to have many advocates in the profession, for I am fully convinced that there has as yet been no accumulation of clinical evidence sufficient to warrant the acceptance of the all-meat diet, and it will be the clinical results obtained which must some day give the question its final answer. Further, I do think that even if we were forced to confess that the meat diet must be accepted as a routine treatment, it must be with the understanding that it is only a makeshift, and that we must strain every nerve to discover some means by which we may again with safety continue our patients with cholera infantum upon a diet of milk.

A CLINCAL STUDY OF THE ETIOLOGY AND TREATMENT OF SUMMER DIARRHŒA OF INFANTS.

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The season when this fearful scourge enters upon its annual mission of destroying health and life is upon us, and it is meet that we discuss again, though it be for the thousandth time, this all-important subject.

There was a time when I actually dreaded the approach of summer. So fatal was this disease, that it was my wont in the beginning of the season to pass mentally in review the innocents who in the community in which I then resided were ready for the slaughter by reason of their ages and the method of feeding applied to them.

I had been taught to regard this disease as an inflammation of the gastro-intestinal tract, chiefly as an entero-colitis, which required minute doses of mercury, with opium and poultices, and astringents in the later stages.

The results of this treatment may be gathered from the following extract from my record book, written August 21, 1869:

"Four cases of this disease have proved fatal in my hands this summer, despite of all efforts; besides one I saw in consultation, and several other fatal cases were communicated to me by colleagues. When I reflect upon the inefficiency of treatment in these cases, and by what strenuous efforts and most anxious care those which survived were saved, I am bound to feel that there must be something erroneous in my conception of the pathology of the disease."

As long as I regarded summer diarrhœa as a purely inflammatory disease, the treatment continued unsatisfactory; the mild cases recovered and the more severe succumbed. The prognosis has, however, become more favorable since the faulty character of this theory became apparent, and since the adoption of less active medicinal treatment and more careful attention to the removal of irritating matters; together with a due regard to food and other hygienic essentials.

It is my belief now, that the summer diarrhœa of infants is chiefly, though not solely, due to the indigestion and multiplication of microörganisms which create in the gastro-intestinal tract conditions somewhat similar to those found in wounds to which septic material has had access. As in the latter, we observe heat, redness and swelling, signifying inflammation, with all its concomitants and sequelæ, modified by the position and functions of the parts involved; so have we in the former, inflammations whose disturbing influence is exerted upon the organs involved, and which give rise to the manifestations of so-called entero-colitis.

Certain it is that the theories hitherto prevailing with regard to the etiology of this disease are faulty. They have served to lead us into faulty methods of treatment. Both these propositions I shall aim to demonstrate.

The causes of summer diarrhœa are usually enumerated as follows:

1. Insanitary conditions, such as overcrowding, poverty and filth.

2. Artificial feeding.

3. High atmospheric temperature.

In the light of recent studies on this subject, we cannot accept these causes as playing more than the *rôle* of predisposing elements favoring the development of bacteria, which are the true potential causes of summer diarrhœa.

1st. That insanitary conditions, poverty, overcrowding and filth are entitled only to the claim of predisposing elements, is made evident by the fact that summer diarrhœa is not a disease confined to crowded cities, nor to those localities in cities where large masses of population are huddled together, nor is it limited to the poorer classes, the lower strata of society. Not unlike traumatic fever, it prevails in all localities, wherever the elements favoring its development are in operation. I am aware that this view is not generally accepted, but my personal experience sustains it, for I have observed the ravages of the disease in the dwellings of a rural town, in the isolated log cabins of the plantation negro, where the pure breezes pass freely through large crevices; I have seen it as fatal in the piney woods of South Carolina as in the better dwellings of this great city. Indeed, I may say that my observations on summer diarrhœas have been almost entirely made in the localities and among the people referred to. Although I have treated a few cases in the tenement-house districts of this city, my principal experience has been gathered at Washington Heights, the section which lies north of One Hundred and Forty-fifth Street, between the Hudson and Harlem rivers. Several cases and one death were observed in that lovely suburban group of dwellings called Audubon Park. A more clean, airy and healthful spot cannot be found in this city, and yet, right here, I have encountered cases as severe as in the dwellings of the Germans and Irish in the district beyond it, or in the negro cabins of the South. And, again, I have spent three summers at one of the most popular summer resorts, and here this grim spectre stalked abroad, defying the pure ozone wafted across a broad expanse of ocean.

These observations have demonstrated conclusively that while filth, overcrowding and poverty do increase and enhance the fatality of summer diarrhœa, they do so precisely for the same reasons which would operate in any other septic disease. Overcrowding, poverty, filth and insanitary conditions enhance the fertility of the soil and favor the multiplication of microörganisms which are introduced with the food into the gastro-intestinal tract.

2d. Artificial feeding. That this is a predominating factor in the production of summer diarrhœa has long been accepted by the profession. The fact that the disease is comparatively rare among breast-fed infants established artificial feeding as a prominent predisposing cause. Meinert, of Dresden (*Jahrbuch der K. Krankheiten*, 1884), shows in

his careful statistics that, out of 500 cases of summer diarrhœa, only 4 per cent. were among breast-fed children. Hope informs us that, among 1000 deaths from summer diarrhœa of infants, only 30 were among purely breast-fed infants.

It has long been sought to account for this immense difference by the difference in composition of the milk derived from the human mamma and that obtained from the cow, which is the most universal substitute for the former. But heterodox as it may seem, I am inclined to the belief, which has almost crystallized into a conviction, that this is an error which has been a veritable *ignis fatuus* in the study of this subject. The chemical composition of cow's milk has been investigated again and again, and authors have presented us with tables, each varying from the other, showing the various elements of difference existing between it and human milk. One writer has handed down to the next the same suggestions, viz., so to change by various methods of preparation, dilution, saccharification and even predigestion of the artificial food, as to approximate it most nearly to the natural food. Has the result been adequate to the labor bestowed upon the subject? Are we more successful to-day in preventing summer diarrhœa than formerly? I doubt it. We still find to-day a serious and fatal form of diarrhœa prevailing during the summer months, which we do not encounter during the spring and winter months. *And yet the system of feeding is precisely the same at all seasons.* Infants take cow's milk with impunity throughout the winter months and thrive admirably; indeed, some of the most robust infants have been thus nourished. But when the blighting temperature of summer comes, the scene changes at once, diarrhœa ensues, the baby languishes, and, perhaps after some exceptionally hot day, we are summoned in haste to see it, beyond hope of recovery, or in the inception of an attack which may terminate in a chronic entero-colitis that will sap the constitution and change the robust infant into a mere shadow of its former self. Have we not all passed through this experience? The tolerance of the infant stomach during the winter months is remarkable, and yet this fact has not received the attention it deserves. No complaint is made of the food, unless an attack of indigestion, probably due to overfeeding, occurs, which soon subsides if the food is changed or withheld. No anxiety occurs if such an attack ensues *during the winter months*, but let even the premonitory symptoms of diarrhœa show themselves during the summer months in an artificially fed infant, how different is the experienced physician's prognosis! At once he sees danger ahead, and preparations are made for battling with an enemy, who has so often defeated him that he has learned to dread his first appearance. Why this difference? It cannot, it does not, rest upon the difference in the chemical constituents of cow's milk. Indeed, the valuable researches of Escherich (*Jahrbuch für Kinder Kr.*, Oct. 1887) have shown, what we all have learned by observation (during the winter), that the great hue and cry about the inappropriateness of casein from cow's milk to infantile nutrition has no foundation. Escherich has fed a healthy infant, ten weeks old, on pure cow's milk, one quart per diem, thus giving the stomach a far larger quantity of casein to dispose of than a nursling of the same age would obtain from the breast, with the result, that he found upon careful examination of the feces an almost ideal digestion of the casein. He was so astounded by the outcome of this experiment that he did not venture to publish it, until he learned that Uffelmann and Forster had reached the same conclusions. He thus was led to the emphatic declaration that "there is no doubt that healthy nurslings are capable of utilizing in the most complete manner cow casein in quantities far in excess of their requirements of nitrogen." Examinations of the feces have established this fact as positive in his mind. If albuminoid bodies approximating casein are found in excess in infants nourished with cow's milk, this is the result of habitual overfeeding, rather than an inability of the gastro-intestinal canal to appropriate the cow casein. "After these investigations," says Escherich, "let not another word be said of the digestion of cow's milk being more difficult in the normally developed infant than the digestion of breast milk."

While I would not be willing to go as far as Escherich, I cannot escape the conclusion, that clinical observations, sustained by the chemical investigations here referred to, point to the fact that practically cow's milk is not so illy adapted to the nutrition of infants as has been generally accepted. Hence the reason of its being so potent a factor (either when taken alone or in connection with other so-called foods) in the production and maintenance of summer diarrhœa must be sought in another direction.

3d. High atmospheric temperature doubtless exercises an important influence in the production of summer diarrhœa. Indeed, the name would indicate that this factor is of paramount import. As I have said above, a diarrhœa occurring in a bottle-fed infant, in a temperature of 40° F., is regarded by us with equanimity, while the same disturbance in a temperature of 95° F. at once creates anxiety. In what manner does the elevation of temperature so completely change the prognosis? It has been generally held that the depressing effect of high temperatures upon the sensitive organization of infants, together "with the noxious exhalation from various sources with which the atmosphere is loaded, as a consequence of the heat" (J. L. Smith), explains this difference. But here, too, as in the matter of artificial feeding, we have

probably been searching in the wrong direction. For, while there is no doubt that the depressing effect and the noxious exhalations due to high temperatures are *predisposing* elements, the fact stares us in the face, that nurslings who are as much exposed to these influences as bottle-fed children enjoy so remarkable an immunity from the disease, as Hope, Meinert and others have mathematically demonstrated. True, it may be held that, being more healthfully nourished, they may be fortified against these noxious agencies arising from heat; but if this were the correct interpretation, the difference would not be so immense as 4 to 96 (Meinert) and 3 to 97 (Hope). We cannot, therefore, accept this explanation of the action of high temperature in the production of summer diarrhœa.

Clinical observation has demonstrated that the three factors referred to, viz., *insanitary surroundings, artificial feeding and excessive heat act in unison in the production of summer diarrhœa.* But, while this is true, their *modus operandi* has, up to the present time, been misunderstood. I am almost convinced that the *kind* of food, if it be reasonably constructed with due regard to the physiological functions of the infantile digestive tract, would be of minor importance *if we could prevent the access of microörganisms in its preparation.*

The reason why cow's milk prepared in the old-fashioned way, by dilution, warming and sweetening, does not produce serious diarrhœa in winter, while it almost invariably does so in summer, lies not so much in its large amount of casein and fat, and smaller amount of sugar, etc.; but more in the fact that *a high atmospheric temperature favors the development and multiplication of bacteria.*

It is a matter of common observation that milk turns sour more readily in warm weather than in cold. Soxhlet has shown this difference in mathematical degrees, viz.; that milk curdles 330 times faster in a temperature of 95° F. than at 58° F. Here we have the whole matter in a nutshell.

It was first shown by Pasteur, as long ago as 1857, that the curdling of milk is due to a bacterium lactis; and since that time Schröder, v. Dusch, Lister, Hueppe, Marpman, Löffler and others have labored effectively to clear up the subject of milk bacteria. It has been demonstrated that milk sugar is transformed into lactic acid by the bacterium lactis, with development of CO_2, and that not all milk fermentation is due to a single organism.

But the most important discovery in connection with this subject was made by Lister, who, in following up the original researches of Pasteur, ascertained that a drop of sour milk, introduced into urine or into any appropriate culture fluid, gave rise to a remarkable development of bacteria of various kinds and degrees of mobility, and that a drop containing any of the latter would again produce souring of milk.

It requires no great stretch of deduction to believe that, when the various bacteria rapidly developed in warm weather in cow's milk after it leaves the udder reach the stomach of an infant depressed by excessive heat and perhaps by insanitary surroundings, their number may be rapidly multiplied; fermentation may thus be set up with evolution of gases, which in turn fructifies the soil for their increased development. The proper breaking up of casein is interfered with and it passes into the intestinal canal, carrying with it masses of bacteria, which, joining those present in the canal, become the parents of such large colonies of various types, that the intestinal tract becomes inflamed and ptomaines are formed, thus giving rise to the local lesions and general phenomena of summer diarrhœa.

That this is not a theory unsupported by demonstration is shown by the investigations of Baginsky, Nothnagel, Booker, Escherich, Hayem, Lesage, Le Gendre and others. In his work (*Die Verdauungskrankheiten der Kinder*, published in 1884), Baginsky refers to his microscopic examinations of the intestinal walls in follicular diarrhœa and cholera infantum, with a view to ascertain if the pathological lesions are coincident with the appearance of microörganisms in the intestinal canal and if this connection is of etiological significance. After carefully eliminating, by processes which he describes, all "cadaveric microörganisms," he succeeded in separating four different varieties, which he describes clearly and which, he is sure, are not post-mortem developments. He says that some of these so closely resemble those found in the stools that the conviction cannot be avoided that they are the same. The abundance of these microörganisms in the feces of the initial catarrh and their reappearance in the intestinal walls in cholera infantum lead him to the view that *they are essential factors in the production of these diseases.*

Booker has studied twenty-three varieties of microorganisms in the different forms of summer diarrhœa in children. The authors mentioned above have entered fully into this subject; but the aim of this paper being purely clinical, I must be content with a simple reference to their work.

These preliminary remarks on the probable causes of summer diarrhœa are necessarily brief, being intended simply as a prelude to the description of treatment. It would follow, from what has been said, that by the light of modern investigation we may recognize the erroneousness of our former management of these cases, and also the reason why such remedies as evacuants, mercurials, bismuth, creasote, etc., have afforded good results in many cases, while the opium treatment, which aimed to cure by quieting the peristaltic action, failed to accomplish any permanent result.

The treatment may be divided into prophylactic, curative and symptomatic. In the prophylaxis of

summer diarrhœa the selection and preparation of the food stand first and foremost.

How can we select an infant food that will fulfil the chief indications of preventing the access of bacteria to the stomach?

We know that human milk is aseptic, hence it rarely produces fermentation and consequent diarrhœa, and I believe *this is its chief claim* to being the foremost food in the prophylaxis of summer diarrhœa. We know, also, that the best substitute for human milk is some preparation of cow's milk, and this is also aseptic when it leaves the udder. Human milk reaches the infant's stomach directly without admixture, while cow's milk reaches it after exposure to various contaminating influences. In the first place the act of milking alone must favor the production of bacteria. I speak from personal observations (having owned a herd of Alderneys) when I say that it is utterly impossible, by the means hitherto in vogue, to avoid contamination. The stable may be ever so neat, the hands of the milker scrupulously clean, the teats carefully washed; but the act of milking involves a kind of churning of the milk deposited in the bucket by the stream propelled into it from the teats. This churning produces a large quantity of foam whose chief constituent is air containing the impurities which the most punctilious attention to cleanliness fails to eliminate from the stable or cow-yard. Besides these, solid particles, hair, etc., mix with the milk, which, though they may be removed by the customary straining, have lain long enough in the milk to contaminate it.

We who realize the necessity of constantly irrigating a wound during a surgical operation, in order to prevent its becoming septic from the air of even the most cleanly operating-room, must appreciate how utterly futile all efforts are to maintain the aseptic character of cow's milk as it flows from the udder. If we cannot fully accomplish such an aim, however, it is proper that an effort be made to diminish the chance for contamination by insisting upon scrupulous cleanliness of the stable, the cow, the milker and the milk receptacle. A bucket has recently been invented which is provided with a rubber cover and thus prevents to a great extent the gross contamination of the milk. The milking-tube would be very useful also, because by it the milk could be made to flow directly into a bottle; but this mode of milking is adapted only to cases in which a small supply is required by persons who own a cow.

The feeding and management of the cow are important, but can only be referred to here without entering into details.

The method recommended in 1819 by a German physician, Dr. Twierlein, of utilizing the goat as a wet-nurse, possesses considerable merit. It may be a troublesome method and, æsthetically, an absurd one. But in view of the fact brought out by the bacteriological researches referred to, the practice deserves a fair trial. Goats may be selected that have been rendered docile by training and practice when quite young and thus become useful for directly nursing the infant. Some inventive mind may devise a long nursing-tube with exhausting cup and nipple-shield, which may enable the infant to lie upon the mother's lap and draw its nourishment without being placed in contact with the animal. In view of the immense importance of this subject, our foundling asylums might very properly undertake experiments in this direction. It is certain that far more valuable results may be expected from experiments in this direction than from any therapeutic research or chemical investigation of other artificial foods.

Next in order, to prevent the access of contaminating matter, comes the destruction of such germs as may have been produced already, and which, if left alone, would surely go on and multiply until their presence is demonstrated by souring. Sterilization of cow's milk must and will be a most valuable preventive of summer diarrhœa. Unfortunately, however, the directions hitherto published for the process are either too complicated or too indefinite to be of practical utility in the household. Soxhlet's apparatus nearly fulfils the indication, but it is cumbersome and expensive. Rotch, Jefferies and Caillé have given directions for steaming or boiling the milk from fifteen to twenty minutes, and they have succeeded in producing a milk which does not turn sour for a long time. The fact that such milk failed to turn sour is accepted by these able and conscientious writers as evidence that the milk is sterilized. But this is an error as Pasteur, Hueppe, Löffler, Lister and others have clearly demonstrated. Pasteur has shown that after boiling milk fifteen or twenty minutes the bacteria are indeed killed, but there is a development of infusoria *which do not render milk sour*, but which may nevertheless separate the casein *under an alkaline reaction*. Löffler found that, after boiling milk ten to twenty minutes and allowing it to stand, he was able to cultivate at least four different kinds of bacilli capable of producing spores, growing in milk and precipitating casein, *under alkaline reaction* (*Berl. klin. Wochenschrift*, 1887, p. 630). Schröder and von Dusch have demonstrated, and Pasteur has confirmed their conclusion, *that boiling is insufficient for the destruction of bacteria and spores, but that a continuous exposure for half an hour of the milk to a temperature of 130° C. (266° F.) is required to sterilize milk completely.*

Here, then, we have a standard for practical purposes. This may explain, by the way, why Caillé, in his valuable experiments (*Dietetic Gazette*, April, 1888), did not obtain quite as good results from his method as from boiling milk in Soxhlet's apparatus for thirty minutes. The latter, boiled under pressure, remained good eighteen days, while the milk he

boiled fifteen minutes only in open bottles was sour after five days, because it never reached a temperature above 212° F. As the absence of acidity, by taste or smell or litmus test, does not prove the complete sterilization of milk, it cannot be asserted that the milk in these experiments was so sterilized.

Fortunately the boiling of cow's milk is a great advantage, inasmuch as "boiled milk produces a much finer coagulum and is to be preferred otherwise; while concerning the length of its stay in the stomach, its behavior in the intestine, and the abnormal fermentation processes, there are no definite observations, we may regard it in these respects as the same as mother's milk" (Escherich, *Journal für Kinderk.*, October, 1887). This is not a recent discovery, however, inasmuch as A. Jacobi advised boiling of milk in 1875 already, and J. Albu ("Milchnahrung und Milchcuren," 1881) recommends Bertling's apparatus for boiling milk under pressure for twenty minutes. He states that coagulation germs are destroyed, as are also those of tuberculosis, typhus, scarlatina and diphtheria. He also states that cow-casein is made more soluble and digestible. His experiments and results have been repeated by Salkowski, who at the instance of Virchow made investigations of Boesken's process of boiling milk under pressure. Soltmann (*Berl. klin. Woch.*, May 29, 1882) says that boiling milk in Bertling's apparatus destroys germs and renders the casein finely flocculent. Reichman (*Archiv für klin. Med.*, Bd. 14, No. 6) experimented on nine adults in the digestion of milk, and found that while 10 ounces of raw milk left the healthy stomach four hours after being imbibed, boiled milk was digested in two and a half hours, and that the casein lumps were much finer in the latter. Smaller quantities, as 3 ounces of boiled milk, were digested in forty-five minutes. I have recently had occasion to ascertain how rapidly boiled milk, taken hot, is digested. I had the stomach of a dyspeptic washed out two hours after taking twelve ounces of hot milk, and found no curds, although mucus was abundant. Hence, boiling milk for infants will not only facilitate digestion, by softening the casein, but, if the boiling can be done under strong pressure, so as to raise the temperature to 266° F., it will also completely sterilize the milk. As the latter cannot be accomplished in a simple apparatus, we may approximate it by boiling the milk, in imitation of Soxhlet's plan, in tightly stoppered, strong glass bottles. A lower temperature, 230° F., will suffice, if it is continued for two hours (Schröder, von Dusch).

When the facts here referred to receive general recognition in the profession, dairymen will doubtless find it to their interest to obtain proper apparatus for sterilizing large quantities of milk, and delivering it in appropriate, sealed vessels to consumers for the use of infants in large cities.

Next in importance to the proper selection of the food comes the hygienic management of the infant. It is a well-known fact that impure air, overcrowding and want of cleanliness conspire to render the morbidity and mortality from the disease greater in cities than in the rural districts. The same rule holds good here which, as mentioned above, applies to all diseases connected with microörganisms, whose multiplication is furthered by unsanitary conditions. The infant should receive a daily bath of tepid water, and I regard a rapid sponging subsequently with a sponge wrung out of cold water, followed by rapid drying and friction, as a most valuable aid in preserving the tone and resisting powers of infants over six months old. The baby should be almost constantly in the open air; it should be kept cool, however, and never exposed to the direct rays of the sun in midsummer. A proper amount of undisturbed sleep should be provided, and all disturbances of the nervous system by excessive playing and fondling must be avoided. The infant should vegetate; its days should pass away calmly and in the utmost comfort. Only by thus shielding it against untoward conditions may the helpless, artificially reared human young be safely tided over the dangers which the advent of summer strews in its path. Even the poorest mother may execute these simple suggestions with regard to the hygienic management of the infant.

A word may here be said of teething as a predisposing cause of summer diarrhœa, because necessity of proper management of the so-called dangerous period is so often urged upon mothers. Chapters have been written on this subject by the older authors, but the gum lance has happily been relegated to the drawer containing useless instruments. May it ever remain there!

Teething requires no special hygienic management, certainly not the aid of the gum lancet. While it may be true that during the evolution of the teeth, the nervous system and probably the digestive organs are in a more or less erethic condition, the fact must not be lost sight of, that this is a natural process which in the large majority of cases proceeds without any effect upon the system, provided there be no other disturbing element in operation. We do not encounter diarrhœa from teething in midwinter, nor later in life when the digestive organs are no longer in a susceptible condition.

The second summer is usually dreaded. The reason is obvious: even a breast-fed infant will then be weaned, and be subjected to the influences of food whose preparation or selection may be improper. The indiscriminate use of articles of food obtained from the table of its elders must be prevented, and ordinary hygienic rules, referred to above, must be enforced in order that diarrhœa be prevented during the teething period.

In connection with prophylaxis of summer diarrhœa, attention to the infant's mouth is important. Escherich in speaking of the normal digestion of the infant says:

"In the mouth the germ-free human milk undergoes no change, except its admixture with saliva and with the *bacteria residing in the oral cavity, which surely cannot be without significance in the development of many mycotic intestinal troubles.*"

It is advisable, therefore, during the summer months to cleanse the mouth with a weak solution of boric acid or salicylate of sodium before the baby nurses. Sudden changes of temperature, which are liable to occur at night in August in this climate, and to which cases of diarrhœa may often be traced, are best guarded against by a flannel bandage around the abdomen and the constant use of socks.

Having considered the prophylaxis of summer diarrhœa in the light of the modern theory of its etiology, we may now proceed to the consideration of its curative treatment.

While it may be interesting scientifically to divide the summer diarrhœa of infants as Lesage and others have done, into several types, it will be of little practical value, since the fact remains that true summer diarrhœa is chiefly due to the presence of bacteria of various kinds which set up in the gastro-intestinal canal fermentation and consequent inflammatory action, resulting in lesions which are pretty uniform in character, and objective manifestations.

The indications of treatment are:

1st. To diminish or remove the source of bacterial supply.

2d. To neutralize the disturbance produced by the bacteria.

3d. To remove them from the intestinal tract.

4th. To meet the nervous prostration, inanition, exhaustion and other manifestations due to the diarrhœa.

1st. To accomplish the first object will only be required in an artificially fed infant. A wet-nurse should, if possible, be procured. This being impossible, it is necessary to look into the mode of preparing the food supply. Sterilization of the milk and scrupulous attention to its preparation for the bottle are of the utmost importance, because in the diseased condition of the gastro-intestinal canal, which now contains quantities of fermenting material, bacteria introduced by the food will multiply more rapidly, as Lister has shown by his experiment of the effect of a drop of milk containing the bacteria of fermentation on any culture fluids. Even if vomiting be not present, the withdrawal of milk, for a short period, will be of great value. Barley-water, rice-water and meat broths, which have been deprived of fats, and which have been thoroughly boiled for half an hour, and rapidly cooled just before using, offer an excellent substitute for milk. A solution of white of egg in water, which has been sterilized by long boiling and cooled, one egg to the pint, taken cold, and in small quantities, is also a valuable nutriment, as it may be absorbed without requiring digestion. This may be continued until the stools assume a more normal appearance and consistence, when the regular food, or some one of the predigested foods, containing dextrin may be gradually resorted to.

2d. *To neutralize the disturbance produced by the ingested and multiplying bacteria.* If we have nausea and vomiting, rest of the stomach stands first and foremost, far beyond all other remedies, unless it be the cleansing of the stomach by irrigation, as recommended by Epstein. I have had no experience with the latter, but it is doubtless of value, and I shall resort to it this summer. The stomach cannot be at rest until all fermenting material be removed from it. This I have hitherto accomplished by the copious administration, by the spoon or nursing bottle, of warm water, to which a small quantity of salt has been added. It is difficult, however, to execute this treatment. Epstein's irrigation of the stomach, by means of a soft rubber stomach-tube of small dimensions, would certainly be a great improvement.

The enforcement of absolute abstention from food and drink, in the early stage of summer diarrhœa, cannot be too strongly impressed upon the mother. It will require all the *morale* she possesses to execute the physician's directions. She may be convinced by the argument that since everything the baby takes is rejected, it is futile to continue to feed it or give it even water. When practising at Washington Heights it was my custom to send the women who brought their pale and shrivelled infants to me, during my morning hour, with a history of purging and vomiting during the preceding night, to a certain broad-limbed tree standing upon a rocky elevation at 165th Street, and instructing them there to await my arrival. Having neither food nor drink with them, the complete rest of the stomach and bowels was enforced, and this together with the exposure to pure air, under the shade of the tree, usually so restored these little ones in a few hours, that I have found them asleep and free from vomiting when I drove up to the extemporaneous sanitarium.

It is not only difficult to convince the mother that baby will not starve to death, if food and drink are withheld for six or eight hours, but I have known intelligent physicians to labor under the same delusion. I well remember meeting, in consultation, a bright young colleague in the case of the largest six months' infant I have ever seen. The baby, though reared on the breast, was suffering from vomiting and purging, chiefly the former. Vomiting had been uninterrupted for twenty-four hours, and had

lately produced serious collapse manifestations, which alarmed the attendant. But despite the refusal of the infant to take the constantly proffered breast, the anxious attendant had milk drawn from it, and forced the child to take it from a spoon. Complete abstention from this course reëstablished the integrity of the stomach, and change of food to broth, and, afterward, diluted cow's milk, together with rectal irrigation, restored the child to health.

There are few cases of vomiting which will not yield to complete abstention from food and drink for a few hours, after the stomach has been thoroughly cleansed. Mustard sinapisms to the epigastrium, and anti-emetic medicines only serve to disturb the patient. If rest does not bring relief, I resort to the old-fashioned Dewees' mixture of

℞.—Magnesiæ . . . . . ℥ ss.
Spts. ammon. arom. . . . . ℥ ss.
Aquæ menth. pip. . . . . ℥ ij.—M.
Sig.—Thirty drops every half hour.

This checks fermentation and appears to soothe the irritation effectually. When this mixture cannot be retained at all, a dose of calomel, one-half to two grains, will almost invariably be retained, if administered immediately after vomiting, laid on a teaspoonful of water, without stirring, or placed dry upon the tongue, and followed by a few drops of water. Calomel not only acts as a parasiticide, but fulfils the indication of removing irritating matters from the intestinal canal.

3d. *To remove the bacteria from the intestinal canal* is a leading indication. It is important that all fermenting material which offers a nidus for their development should be swept out. A full dose of castor oil, or when the stomach is irritable a dose of calomel, will remove the entire mass from the upper tract. It will not be necessary to repeat the purgative if it is followed by thorough irrigation of the large intestine with sterilized warm water. I believe that in this procedure we possess a most valuable remedial measure for summer diarrhœa. But it must be borne in mind that irrigation cannot be accomplished by an *enema* of warm water. This would act as an irritant and create additional disturbance. A rubber horse catheter, or a large Nélaton catheter, should be used for this purpose, because its walls are firm and yet elastic, and its length admits of its deep introduction. It should be attached to the pipe of a fountain syringe, containing one quart of water that has been boiled for half an hour, and in which half a drachm of bicarbonate of sodium has been dissolved. The infant is placed upon the abdomen in the lap of an attendant. The tube anointed with vaseline, and firmly held between the thumb and index finger of the right hand, is gently introduced into the anus. The pressure of the fingers is now somewhat relaxed, in order that the water may flow, while the tube is being gently but firmly pushed into the intestinal canal. Whenever it meets an obstruction it should be withdrawn a little, and gently persuaded to pass upward. Sometimes it is more readily introduced when disconnected from the syringe. When the upper point has reached the transverse colon, or cannot be introduced further, it is held quietly until about a quart of water has passed. There will be no distention, because the pressure of the child's body upon the nurse's lap will aid in expelling the water as rapidly as it is introduced. I have occasionally added with advantage one-half grain bichloride of mercury to the quart of water, allowing always an extra pint of plain water to follow the medicated injection, to prevent poisoning.

Expérience has convinced me that thorough irrigation of the large intestine, administered by the physician or by a competent nurse, under special instruction, every three, four or five hours, lessens the number and changes the character of the movements, and produces a most soothing effect upon the patient. I have frequently seen infants, who had been tossing in pain, purging and vomiting, drop into a gentle slumber, while the water was still flowing. Almost invariably a quiet slumber follows the irrigation, the purging ceases, or is much modified, and the whole aspect of the case is changed. The result of the irrigation is the removal of bacteria, mucus, undigested food and fermenting material. Cantani has in the treatment of cholera succeeded in reaching the stomach by such irrigations. J. L. Smith has found the lesions in summer diarrhœa

"in all but one of eighty cases in the colon, in thirty-nine, nearly or quite through its entire extent; in fourteen it was confined to the descending colon; the portion of colon most frequently inflamed is just above the sigmoid flexure."

"In the large intestine, the cæcum, sigmoid flexure, and upper part of rectum were the portions in which the most advanced lesions were met with. In the small intestine the changes were generally limited to the lower part of the ileum," says Holt in The Medical News of June 9, 1888.

Hence we may safely assume that the irrigations reach most of the diseased surface, and thus we follow the indications of modern therapeutics, to treat local troubles by local measures, as far as possible. The inflamed parts are not only soothed by these warm irrigations, but the *materies morbi*, which maintain the disease, are removed and neutralized. An incidental advantage, too, is the stimulation of the hepatic function, which this imitation of Krull's injections produces.

While I have, in cases of dysentery, resorted to the addition of bichloride of mercury with advantage, I regard the addition of antiseptics to the irrigating fluid as unadvisable, inasmuch as the solutions can-

not be made sufficiently concentrated to effect the destruction of germs and spores without endangering the integrity of the mucous membrane, or menacing the system by poisoning from absorption. Further investigations may develop a perfected medicinal irrigation. For instance, Cantani's method of tannin irrigations in cholera may be here initiated. In chronic and subacute cases these may be valuable, by local astringent action.

The internal administration of antiseptics, especially salicylate of sodium and naphthalin, has found able advocates, but if we consider how large a quantity would be required to sterilize so extensive a surface, we can scarcely expect any decided results from this practice. My own experience is confined to small doses ($\frac{1}{64}$ grain) of bichloride of mercury, and large doses of bismuth, both of which have proven valuable, chiefly in subacute or chronic cases; the former when the stools were clayey and offensive, the latter when they were thin and choleraic.

I must say, however, that in recent years it has been my constant aim to eliminate medicinal treatment from the management of acute summer diarrhœa, as from other acute diseases. It is of paramount importance to maintain the integrity of the stomach, which must be more or less impaired by the administration of drugs. When the stomach is restored sufficiently to receive and retain anything, I regard the introduction of food as far more important. Medicines should be administered *per rectum*, if possible, or avoided altogether. Doubtless our predecessors of the Meigs, Dewees and West school have had good results from "antiphlogistic" doses of mercury, because its antiseptic and purgative properties removed the bacteria and irritating matter, but they found it necessary to guard it by the addition of opiates, to prevent harmful purgation, while they "stimulated the liver." If we can disinfect, cleanse and soothe the intestinal tract, and at the same time "stimulate the liver" by irrigations, the necessity of medicinal remedies becomes less pronounced.

4th. *To meet the manifestations due to the diarrhœa, and probably to absorption of ptomaines* is a plain indication. Prostration of the vital powers is often rapid and pronounced, threatening a speedy, fatal issue in many cases, from the very inception of the disease. I confess that, until recent years, the true cause of this alarming condition escaped me. Since the recognition of high body temperature as a cause of the prostration, the prognosis of these cases has become far more favorable in my hands.

An elevated temperature range frequently marks the advent of the summer diarrhœa, especially the more alarming types. Indeed, if the rectal temperature were more systematically observed, it would be discovered that a large number of severe cases are ushered in with and maintain a temperature ranging from 102° to 106°. So deceptive are the cool skin (especially of the extremities) and the clammy sweat produced by relaxation consequent upon the nausea, vomiting and diarrhœa, that the high internal temperature is liable to escape observation.

Since I have, during the past eight years, made it an invariable rule to ascertain the exact rectal temperature, I have again and again been surprised by the presence of hyperpyrexia when I least expected it.

The most gratifying result of this practice has been the comfort and improvement of the patient accomplished by the reduction of the high temperature.

I have not resorted to medicinal antipyretics with sufficient frequency to offer reliable deductions. But the graduated cold bath, reduced from 95° to 80°, and continued until the thermometer in the rectum registers a decided fall of temperature, has brought me results which I have obtained from no other remedy. The reduction of temperature, if it can be maintained for twenty-four hours, and the stimulus of reaction from the cold-bath will, in acute summer diarrhœa, completely change the entire aspect of many cases. Vomiting and diarrhœa often cease, the most alarming head symptoms, restlessness, jactitation, screaming and squinting, are almost invariably removed or modified; sleep follows, and convalescence may be established in a brief time, if the cold-bath is resorted to early. After the bath the child should be wrapped in a sheet wrung out of the bath water, reaching from the neck to the knees, while the warmth of the feet is maintained by hot-water bags.

This paper being clinical, I will not enter into a theoretical explanation of the action of cold water in these acute cases. The following case will illustrate the method of administration and its results:

P. S., infant, six months old, vigorous and healthy, living in one of our best houses on the banks of the Hudson, had been weaned one month. Since that time he had been suffering from occasional diarrhœa, which had been treated with more or less success by my friend, the late Dr. Frothingham, and myself for a week. On July 30, 1881, vomiting and choleraic stools prompted the mother to summon me in haste. I found the little fellow a changed being; his features were pinched, skin cold and clammy, eyes sunken; he could retain nothing, the bowels ejected a thin, green fluid about every half hour, sometimes more frequently. Drs. A. Jacobi and J. Lewis Smith were summoned in consultation by my request. The former was absent; the latter reached the house about five hours after the messenger was despatched.

In the meantime the symptoms grew more and more threatening, the pulse began to fail, the child lay with upturned eyes, pinched features, rapid, shallow respiration and cold extremities—on the

brink of dissolution. It occurred to me to take the rectal temperature, and, to my great surprise, I found it 106° F. A cold-bath was immediately ordered, although the proposition so shocked the mother that she wrung her hands in despair, lest the infant should succumb to the cold. A large bath-tub was half filled with warm water until the temperature reached 90°. The infant, whose stony gaze indicated the approach of eclampsia or impending dissolution, was submerged in the water, except the head; the lower and upper extremities were held up and chafed. Cold water was turned on, and ice-water was added, while the water was permitted to flow from the tub. In ten minutes the temperature of the water was reduced to 80°. A smile now passed over the baby's face, his eyes lost the stare, and he revived. His rectal temperature began to fall, and in ten minutes reached 100°. He was now wrapped in a cloth wrung out of water at 80°, from neck to knees; hot-water bags were applied to the extremities, and he was carefully covered. He fell into a sweet slumber, from which he awoke when Dr. Smith arrived, to find him rescued from immediate danger. A wet-nurse and careful attention restored the child in a few days.

Inanition caused by the diarrhœa must be met by a cautious selection of food. I have dwelt upon the fact that in health cow's milk, sterilized shortly after leaving the udder, offers an excellent substitute for human milk, and is a good prophylactic against summer diarrhœa, because, as Escherich and Uffelmann have shown, the *healthy* infant is perfectly competent to dispose of large quantities of cow's casein. But, when the digestive organs are enfeebled by disease, cow's casein will not be readily taken up, and will act as an irritant to the bowels. As broths and solutions of albumen can be used only as temporary substitutes, one of the prepared foods, constructed from pure, sterilized, partly pre-digested milk, with a proper proportion of dextrin and sugar of milk, to approximate in food value to human milk, will be found of great value. Here we need a partially predigested food, whose unirritating elements may be quickly taken up by the digestive organs without leaving much residue.

I have reported several cases strikingly illustrating the value of the most recent of these foods two years ago, and I have, since that time, observed similar results in two cases, one of these an infant whose mother had been compelled to accept a position as wet-nurse, and which was being fed on condensed milk. This baby had twenty-five stools a day, and was shrivelling up, when I stopped all nourishment, gave brandy and water, and then put him on the prepared food, which, in a few days, produced a complete change.

Care is requisite in warning mothers not to add milk to these prepared foods containing milk, which they will be tempted to do in order to concentrate the food. It is important to impress upon them the danger of overfeeding in disease as well as in health; to this cause much infantile gastro-intestinal disturbance may be charged. There is no limit to the amount a bottle-fed child takes, except its own free will and capacity. The former is limited by the supply in breast-feeding, hence the latter is rarely overtaxed. But in bottle-feeding the supply is unlimited: hence the quantity should be carefully guarded, and should be made appropriate to the age and digestive powers of the recipient.

Alcoholic stimulants are valuable as aids to tide over the danger of collapse and debility from inanition. Good whiskey and brandy are probably the best. Opiates are the only medicinal remedies that possess absolute effects in checking peristaltic action. I now have little confidence in the various astringents, which I formerly used extensively. As they were usually combined with opiates, it was impossible to judge their intrinsic value. After all irritating matter has been removed from the gastro-intestinal tract, opiates are most valuable measures for allaying the irritation of the intestinal canal and comforting the patient, but their administration has hitherto been too indiscriminate.

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MEDICAL PROGRESS.

On Amylene Hydrate.—DR. LARES, in an article in the *Berliner klin. Woch.*, of May 21, 1888, presents the following conclusions:

1. Amylene hydrate is a very useful hypnotic, which may be given in two or three times as large a dose as chloral hydrate.

2. It operates somewhat less certainly than chloral hydrate and morphine.

3. Unpleasant accidents (excitement, slight drunken-like stupor) were very seldom observed. Grave accidents were never observed.

4. A tolerance, relative to diminution in efficiency, was not noticed within three months.

5. The deep and refreshing nature of the sleep obtained was praised oftener than in the case of any other sleep-producing means.

Ectocardia Cured by a Plastic Operation.—PROF. LANNELONGUE, of Paris, recently presented to the Académie des Sciences a very remarkable case of deformity of the chest wall, with ectopia of the heart, which he had dealt with successfully by operation. The patient was a female child, six days old, well formed in every part except the throax. On the front of the chest over the middle of the sternum there was a circular ulcer, rather larger than a franc piece, the base being formed by a yellowish membrane which appeared to be becoming gangrenous. It was already detached from the edges of the ulcer at several points, and thus only imperfectly closed the aperture into the chest. Each beat of the heart pushed it forward, and on applying the finger during systole the hardening of the ventricular walls as they contracted could be distinctly felt. The inner ends of

the clavicle articulated below with the first rib, and appeared to be free internally and above; the sternum was entirely wanting between them. This gap in the osseous wall of the chest extended downward in the middle line; the sternum appearing to be represented on each side only by a narrow strip of bone running downward and obliquely inward, and finally joining the corresponding piece below the median ulcer already referred to. The deficiency in the bony chest wall was therefore of the shape of an isosceles triangle, the apex being below at the ensiform cartilage and the base above at a line joining the inner ends of the two clavicles. The side of the triangle measured one and a half, and the base one inch. The circular ulcer was, as it were, inscribed in this triangle. On inspiration the chest wall corresponding to the malformed part of the skeleton was drawn in, so that a hollow half an inch deep was formed at the upper part; in expiration, on the other had, it bulged markedly forward.

A few days after the little patient was first seen, the remains of the "obturator" membrane at the bottom of the ulcer disappeared; the pericardium was seen to be entirely wanting; the apex of the heart projected outside the chest, and the whole anterior surface of the ventricles was exposed. The hole in the skin became gradually smaller owing to the formation of large fleshy granulations, which pressed on the apex and ventricles of the heart, and it was obvious that immediate surgical interference was necessary to prevent most serious disturbances of the circulation. M. Lannelongue therefore made two vertical incisions on each side, six-tenths of an inch to the other side of the ulcer; the flaps thus formed were sufficiently loosened to allow of their internal edges being brought together over the opening in the chest wall, where they were fixed by three hair sutures. Only a few drops of blood were lost; the operation was not followed by any constitutional disturbance, and the wound was entirely healed in twenty days. Two months after the operation the child was in perfect health. M. Lannelongue points out that in this way he transformed the case from one of "ectocardia" into one of "subcutaneous ectopia." He thinks it possible that the ectopia, which is at present extra-thoracic, may in time, as the heart develops, become intra-thoracic. Professor Verneuil, in presenting M. Lannelongue's communication to the Academy, remarked that this was the first time such a procedure had ever been attempted.—*British Medical Journal*, May 26, 1888.

The Treatment of Flatulent Dyspepsia.—Pepper, in a recent clinical lecture, stated that flatulence may result from the excessive formation of gas. Under these circumstances, such remedies as sulphurous acid, which is a powerful antiseptic, will be found useful. It may be given alone or combined with small doses of strychnia. He prescribed as follows:

R.—Acidi sulphurosi, . . . ℥iss vel ℥ij.
Strych. sulph. . . . . gr. ss.
Tr. card. comp., . . . ℥ss.
Aquæ, ... ad ℥iv.
Sig.—One drachm after meals, in water.

You may resort to a different class of remedies and give creasote. This is a local stimulant to the stomach, and in atonic cases is of service. It is at the same time a powerful antiseptic and anti-fermentative agent. Creasote is best given one-half or one hour after meals, when the process of fermentation is about beginning. At this time the gastric digestion should have passed through the acid stage, and the contents of the stomach should be neutral or alkaline. Given at this time, the creasote may be advantageously combined with an alkali, as sodium bicarbonate.

R.—Creasote . . . . . gtt. x.
Sodii bicarb. . . . . ℥ij.
Pulv. acaciæ, ... q. s.
Aquæ, ... ℥v.
Sig.—Two drachms one hour after meals.

In place of the sodium bicarbonate in the above formula the subnitrate of bismuth may be employed.

If it is recognized that there is not only a state of atony with a tendency to fermentation, but that there is also a deficiency of gastric power, pepsin or ingluvin may be given. Pepsin is best taken in acid mixtures, and should be given at the acid stage of the digestion. At the same time, if the administration of the drug is postponed for a short time after meals, it comes at a time when the power of the gastric juice is about exhausted.

R.—Pepsin. fort. . . . . ℥ j.
Creasot. . . . . gtt. x.
Bis. sub. carb. . . . . ℥ ijss.—M.
Et ft. pulv. No. xxx.

One of these powders, in a small gelatine capsule, can be given one hour after each meal.

Ingluvin is a powerful digestive agent, and may be substituted for the pepsin. I have found it of service in cases where pepsin does not work well, and I should be disposed to say, where the mucous membrane of the stomach is decidedly irritable.

Again, in this same line of thought, we have agents, like powdered charcoal, which act as absorbents of the gases, and are, at the same time, anti-putrefactive and anti-fermentative in their action. Powdered charcoal, with soda or bismuth, may be given a couple of hours after meals, and in the class of cases of which I have been speaking, may afford a great deal of temporary relief. When charcoal is given, the patient should be informed that it will cause blackening of the stools.—*The Polyclinic*, May, 1888.

Intravenous Injection of Sodium Carbonate in Diabetic Coma.—Hesse reports a case of diabetic coma temporarily improved by the intravenous injection of eight ounces of a 4 per cent. solution of sodium carbonate. He adds three cases collected from the literature of the subject.—*Berliner klinische Wochenschrift*, May 7, 1888.

Intrapleural Injections of Sterilized Air.—At a recent meeting of the Academy of Medicine Prof. Potain presented a patient, a young man twenty-three years of age, who had been the subject of tuberculosis, and who had been admitted into his ward in the month of June last with a pneumothorax and an extensive pleuritic effusion, which were completely cured by a new operative procedure, which consisted in intrapleural injections of sterilized air. Considering that the sudden withdrawal of the totality of the liquid or its extraction in several days

might equally have grave inconveniences, he decided upon replacing the liquid, as the latter was being withdrawn by a body much less injurious—that is, by sterilized air; and it was thus that, after four punctures practised in the space of five months, he was able to cure this patient, not only of his pneumothorax and of his pleuritic effusion, but also of his tuberculosis. This was proved by the sputa and the pleuritic fluid, which at first contained numerous tuberculous bacilli, but from which they were now perfectly free. The learned professor exhibited the phials and the divers instruments which constitute the technique of the operation. He then described the *modus agendi* and the divers phases of the principal operation, and of the successive operations. He applied the same treatment to two other patients affected with pneumothorax of tuberculous origin, and with equal success.

The following is a summary of the conclusions arrived at by the author: 1. It is possible completely to evacuate the liquid of pleuritic effusions consecutive to pneumothorax, on the condition of substituting for it sterilized air. 2. By being disengaged of all germs by its filtration through cotton, the air is deprived of injurious action, and does not provoke any alteration of the pleuritic liquids. 3. This practice suppresses the grave dangers which result from the presence of a large quantity of liquid in the pleural cavity, or from the rapid evacuation of a great effusion. 4. It permits, on the other hand, the avoidance of serious inconveniences, and of frequently renewed punctures, and saves the lungs from the possibility of a slow and progressive distention. 5. Finally, by leaving for a long time the lungs of a patient in repose and inactivity, the cicatrization and the definitive cure of the tuberculous lesions are promoted.—*Lancet*, June 2, 1888.

Experimental Researches on Tuberculosis.—Dr. Cornet publishes in the *Internationale Klinische Rundschau* an account of a series of experimental investigations on tuberculosis which he has been conducting for the last two years in the Berlin Hygienic Institute. The experiments were divided into three groups: the first of these dealing with the air and dust in dwelling-houses, hospitals, etc.; the second group comprising observations directed to the parts of the body affected by tubercle artificially introduced in different situations; and the third group consisting of attempts to solve the problem of the possibility of rendering the tissues unsuitable as a cultivating medium for tubercle bacilli. In order to examine the walls and floors of rooms the surfaces were washed over with sterilized sponges, which were then used to inoculate broth, the resulting culture being injected into the abdominal walls of three guinea-pigs. The animals (if they did not die of some intercurrent affection) were killed forty days later, and a careful necropsy made. Twenty-one hospital wards, in which most of the patients were phthisical, were examined in this way, the result being that from the dust of fifteen of them tuberculosis was set up. Similar observations made in lunatic asylums showed that the walls of these establishments are very frequently infected with the tubercle. Private houses where persons affected with phthisis had lived gave likewise very distinct positive results; out-patient departments and surgical wards appeared, on the other hand, to harbor no tubercle. One important observation made was that where phthisical people had been in the habit of expectorating on the floor, this was certain to yield infectious cultures, whereas in cases where handkerchiefs or spittoons had always been used the liability of the dust to prove infectious was very greatly diminished.

Regarding the organs affected, Dr. Cornet fully confirms Koch's observation that, except the actual point of introduction, the organs most affected are the nearest lymphatic glands; thus, when inhalation is the mode of infection adopted, the bronchial glands are the organs most affected; when injections are made into the abdominal walls, the inguinal glands of the side selected show the greatest degree of tuberculous infection; and when the virus is introduced directly into the abdominal cavity, the omentum is the part most affected.

The therapeutical observations were made with tannin, "pinguin," sulphuretted hydrogen water, menthol, corrosive sublimate, creoline and creasote, all of which were given in much larger doses in relation to the body weight than anyone would think of prescribing for human beings. In the case of corrosive sublimate toxic symptoms were induced before the tubercle was injected, and care was taken with all the other remedies that the system was well saturated with them. Notwithstanding all this, however, every animal died, not the slightest hindrance being apparently caused to the development of the tubercle bacilli by any of the remedies. Dr. Cornet remarks that, of course, the results of experiments on guinea-pigs must not be taken as necessarily holding good for human subjects, as he has himself repeatedly proved the great value of creasote in the treatment of phthisis. Again, some infected guinea-pigs were sent to Davos, others being kept in Berlin, the conditions of life of the two sets of animals being rendered as similar as possible. All of them died in about the same time, and no perceptible difference was found in the degree of tuberculous infection of the tissues in the two classes of cases. Dr. Cornet promises to publish the details of all his observations in the *Zeitschrift für Hygiene*.—*Lancet*, May 19, 1888.

An Antiseptic Paste.—*L'Union Médicale* of May 19th, 1888, gives the following formula for an antiseptic paste:

Iodoform.	gr. 40.
Essen. eucalypti	ʒ 5.
Paraffin.	ʒ 12½.
Vaselin.	ʒ 12½.

This paste is especially adapted to the treatment of ulcers.

Sulphonal.—Mr. Ernest Lovegrove states that the effects of sulphonal upon patients is very discouraging. He finds that for several hours after taking the drug no appreciable effect could be observed, but during the greater part of the following day there was extreme drowsiness, also considerable cyanosis. The best mode of administering sulphonal is to mix it with pulv. tragacanth co. and water.—*British Medical Journal*, May 26, 1888.

Dilatation of the Stomach in Diseases calling for Surgical Treatment.—Bazy, in the *Gazette Hebdomadaire* of May 18, 1888, writes that a dilated stomach furnishes a good

lodging for septic germs, which may give rise to constitutional infection after operations. He advises the diagnosis of dilated stomach before operation, and the use of proper gastro-intestinal disinfectants.

The Treatment of Diseases of the Stomach.—DR. P. C. KNAPP, in an instructive article in the *Boston Med. and Surg. Journal* of June 7, 1888, reviews the recent advances in the diagnosis of gastric disease, especially as regards the presence or absence of free hydrochloric acid in the gastric juice. These new methods, he claims, will alter our present method of treatment. In the majority of cases there is a normal or excessive amount of hydrochloric acid; hence the common exhibition of it is needless and often injurious. Where the acid is in excess we should not depend on alkalies. The stomach should be washed out at night, Carlsbad water given in the morning, and the stomach given increased work by giving the patient an albuminous diet, avoiding carbohydrates. When acid is absent, or much diminished, the ordinary dose (ɱv–x) is much too small. Ewald (*Berlin. klin. Wochenschr.*, Nos. 3, 4, 1886) has calculated that to render neutral juice properly acid, thirty to forty minims should be given after each meal, in three doses fifteen minutes apart, beginning about an hour after meals. When acidity of the stomach is due to lactic acid, from fermentation, this should not be combated solely by alkalies, although Carlsbad may be used. The stomach should be washed out, and hydrochloric acid given, for it will be remembered that when hydrochloric acid is formed during digestion it checks the formation of lactic acid. In catarrh and dilatation, washing out of the stomach is a remedy to be first employed. In muscular insufficiency, strychnine and very mild faradic currents may prove serviceable. In "nervous dyspepsia," as Knapp long believed, special treatment is uncalled for; we must build up the nervous system, and the stomach will take care of itself.

He said nothing of that panacea for all disturbances of digestion, of which at least nineteen varieties are brought to our attention weekly, namely, pepsin. He always acted on the statements which physiologists have been making for years, that pepsin is required for digestion only in small amounts, and that hydrochloric acid is the important factor. In the great majority of cases there is plenty of pepsin in the gastric juice, and the addition of any more is needless, and, therefore, wrong. In a few instances, where partly digested food is to be given, pepsin becomes necessary in its preparation, otherwise the use of pepsin is thoroughly unscientific.

Saline Purgatives in the Treatment of Typhlitis and Peritonitis.—DR. C. W. SUCKLING, in the *British Medical Journal* of May 26, 1888, states that in typhlitis due to fecal retention, and in peritonitis from the same cause, saline purgatives are of great value, especially if enemata fail to act. In moderate doses they do not cause peristalsis, their action is quite painless, and they are exceedingly useful in washing away hardened scybala. During their administration the abdomen should be frequently examined, and any accumulation of fluid in the intestines treated by stimulants.

In a case which he narrates, the saline aperient evidently had caused a large flow of fluid into the intestine, but the bowel was not sufficiently powerful to evacuate it; restoration of tone by stimulants at once enabled the bowel to empty itself.

Injections of Ozone Water in Cancer.—SCHMIDT reports two cases of cancer treated by parenchymatous injection of ozone water in varying proportions. From one to ten injections daily were given, varying with the size of the cancer. No great pain was caused by the injection, and improvement in the condition of the tumors followed. Microscopic examination showed a diminished number of nests of cancer cells. The cases improved rapidly, and the formation of normal connective tissue occurred. No ill effects followed the treatment.—*Wiener medizinische Presse*, No. 19, 1888.

Extirpation of the Gall-bladder.—CREDÉ (*Korresp.-Bl. der ärztl. Kreis-u Bez.-Ver. in Sachsen*, 1888) relates a case of complete extirpation of the gall-bladder for lithiasis and hydrops. The patient, a female, aged twenty-nine years, had suffered with hepatic colic at eighteen, with peritonitis, presumably from the existence of gall-stones, at twenty. In the summer of 1886, she noticed, to the right of the umbilicus, a small, painful tumor, which by February, 1887, had grown to the size of a hen's egg. On the 23d of November, 1887, the abdomen was opened, the gall-bladder, containing five ounces of a cloudy, viscid fluid and forty calculi, with difficulty separated from the liver, and removed; a double ligature being applied to the cystic duct close to the common duct. The patient was out of bed early in January, 1888. She has since been well, has gained flesh and attended to her household duties. Following an attack of vomiting, thirty-six hours after the operation, severe pain was felt at the site of the operation wound. Fever and tenderness set in, and, on the fifth day, the wound was reopened at its middle, and some pus and blood-clots evacuated. This illustrates the danger of secondary hemorrhage from the liver, to control which we are almost powerless. On this account, in the case of anæmic individuals, incision into the gall-bladder, without extirpation, commends itself, but with ligature of the cystic duct. In the case of patients with some degree of resistance, however, the speaker considered complete extirpation indicated as the best method, as leading to the most rapid recovery without leaving fistulæ behind. Of course, operations upon the gall-bladder are not to be performed in all cases of disease of the organ. In most, nature is able to help herself; but there will always be certain cases in which danger to life arises and persists, and operative treatment must be instituted; and it may be said with satisfaction that the methods of operation have already been so far perfected that patients may submit to surgical measures with a prospect of pretty certain success.—*Memorabilien*, May 31, 1888.

The Painless Extraction of Teeth.—To extract teeth without pain, HÉNOQUE and FRÈDET (as reported before the Société de Biologie, at Paris, on February 4th) apply the ether spray to the neighborhood of the external auditory meatus. The anæsthesia affects the branches of the trigeminus on the face and suffices for the purpose. The procedure is simple and harmless.—*Memorabilien*, May 31, 1888; from *Zeitschrift für Therapie, etc.*, 1888.

The Medical News.

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SATURDAY, JULY 7, 1888.

THE HEART IN LOCOMOTOR ATAXIA.

BERGER and ROSENBACH, in 1879, called the attention of the profession, in a brief notice in the *Berliner klinische Wochenschrift*, to the association of aortic insufficiency with locomotor ataxia. They published notes of seven cases without comment. In the following year, ANGEL, in an article in the same journal, entitled "The Coincidence of Heart Lesions with Tabes," reported, in a series of twelve patients suffering from locomotor ataxia, five cases in which there was the sign of aortic insufficiency, namely, a diastolic murmur, present only however after muscular effort, and disappearing during prolonged rest. The murmur was not heard at all in the morning while the patients still remained in bed. This observer regarded the murmur in question as due to abnormal action of the heart-muscle.

GROEDEL, whose opportunities for the study of locomotor ataxia at Bad-Nauheim have been very extensive, regards the occurrence of cardiac affections in this disease as wholly accidental (*Deutsche medicinische Wochenschrift*, May 17, 1888). In this view he concurs with Eulenburg and Erb.

Between 1875 and 1879—namely, at a time when his attention had not yet been especially called to the subject—Groedel noted, in forty-three cases of locomotor ataxia, only two in which the signs of valvular disease were present. The records of this period refer either to absence of heart complications in the other forty-one cases, or to the occasional occurrence of quickening of the pulse rate and precardial distress and oppression. Between 1880 and the close of 1887, a period during which every case of locomotor ataxia was studied with especial reference to the condition of the heart, valvular lesions were detected in only four out of one hundred and eight cases, and in no instance was he able to recognize the murmur of aortic insufficiency after muscular exertion, as described by Angel.

Cardiac phenomena of a different kind were, however, very frequently observed. These consisted of feeble action of the heart, increased frequency of the contractions, small pulse, faintness of the sounds—manifestations not only common in enfeebled subjects but also in those still well-nourished and strong. The patients presenting these signs frequently complained of palpitation, shortness of breath on exertion, even of occasional attacks of palpitation while at rest and after excitement. In only two instances were these symptoms associated with the signs of dilatation of the right and left chambers of the heart. He concludes that even these symptoms are in no wise characteristic of locomotor ataxia, since they occur in all kinds of chronic maladies associated, as is so commonly the case, with anæmia and neurasthenia. Leyden has noted four cases, and Vulpian one case of locomotor ataxia in which peculiar paroxysmal attacks closely resembling angina pectoris occurred.

Groedel, following Leyden, regards these attacks of paroxysmal precordial anguish and oppression, of which he communicates the notes of two interesting cases, as probably of the nature of irregularly developed girdle pains, or, at least, as neuralgia in the distribution of the cardiac branches of the vagus, as the gastric crises and the laryngeal and bronchial crises are to be referred to the corresponding branches of the vagus.

ANOTHER STEP IN ADVANCE.

IN our issue of June 16th, the hope was expressed that other leading medical colleges would soon follow the example of Jefferson in extending the curriculum to three obligatory winter sessions. The College of Physicians and Surgeons, of New York, now publishes a similar announcement. The profession and, more especially, the Alumni of the remaining prominent medical colleges have reason to expect that these schools will now make haste to align themselves with other institutions of the first class. The plea of "financial suicide" will no longer avail in extenuation of further delay. Loss of prestige will, in the end, surely entail the money losses they

wish to avoid. If these chief competitors make the move together, they preserve their present business relations to each other, while they give a much needed lift to the standard of medical education throughout the country. The really meritorious colleges everywhere will see at last that their interests lie in the direction of their inclinations. For, surely, no faithful teacher will deny that he wants to extend the period of study, in order that he may fairly exact higher qualifications from the candidate for the medical degree.

A NEW medical school, under the auspices of the Roman Catholic Church, is projected at Brooklyn, Bishop Loughlin being president of its board of trustees. It will be connected with the St. Mary's Hospital and under the care of the Sisters of Charity, but otherwise will be non-sectarian in its management. According to an Act of the last Legislature, the Faculty of this proposed college will be empowered to grant the usual medical degrees and licenses to practise.

AT the last meeting of the British Columbia Medical Council, it was decided to proceed vigorously against unregistered and unqualified practitioners. In pursuance of this policy, a Dr. Millar, an English physician, was, on the 14th inst., brought before the police court at Vancouver, British Columbia, charged with practising his profession in that province without having obtained a license from the Medical Council. Mr. Walker, barrister, of Victoria, B. C., conducted the prosecution on behalf of the Medical Council of British Columbia, and the defendant was fined twenty-five dollars and costs.

It is the intention of the Medical Council to proceed against all parties practising medicine in the province without a license.

THE coming meeting of the British Medical Association at Glasgow, in August, bids fair to be crowned with marked success. The announcements in the English journals of the untiring efforts of all the various committees promise a programme of instruction and entertainment that should crowd the week to overflowing. There is an International Exhibition in successful operation in that city, which will absorb many of the spare half hours of the delegates, and ten different excursions for the closing Saturday have been planned for strangers who wish to get a glimpse of the firths, lochs and hills of romantic mid-Scotland. In the Sanitary Section, the admirable progress made by the Scotch cities in ambulance work will be illustrated by a fine array of wagons and appliances for both military and civil practice.

THE Société de Biologie, of Paris, at its meeting on June 9th, on the suggestion of Brown-Séquard, resolved to convene an International Physiological Congress next year, at Paris. Brown-Séquard, as chairman, Richet, d'Arsonval and Marey were appointed a committee to make the necessary arrangements.

A SILVER medal was awarded at Amsterdam to Prof. Adamkiewicz, for his investigations upon peptone.

THE Dutch Scientific Society, of Harlem, has awarded Prof. Virchow the Boerhave Medal for Anthropology.

THE prospectus of the new serial issue of clinical lectures, entitled *Berliner Klinik*, to be edited by Fürbringer and Hahn, announces that the opening numbers will consist of two lectures by Professor Senator, upon "The Methods and Aims of Medical Activity," and upon "Icterus, its Origin and Treatment."

PROF. DONDERS has directed that the memorial fund of 57,000 marks ($14,250), collected by his friends and admirers on the occasion of the anniversary of his seventieth birthday, be devoted to affording means for promising students of the University of Utrecht to continue their studies in ophthalmology and physiology.

THE *British Medical Journal* of June 23d, in commenting on the late Emperor's case, says, "We understand that the illustrious patient had thoroughly made up his mind not to submit to any operation that might shorten his life or destroy his voice. This decision was altogether independent of medical advice, though it was afterward strengthened, as was natural, by the negative results of Sir Morell Mackenzie's clinical and Prof. Virchow's pathological examinations."

THE watchful tendance over a person bent on suicide can be intermitted never. It is related of the wife of a prominent pharmacist of Chicago that she was subject to frequent fits of melancholia that necessitated constant watchfulness, and the removal of all weapons or dangerous articles. The patient was, however, able for a brief period to elude the

eye of her attendant, and immediately took the opportunity to pour oil over her clothing and person, and to set fire to herself, and by this ingenious and horrible expedient put an end to her mental sufferings. For cunning and fortitude, this case will stand as a notable example of the lengths to which those persons whose minds are rendered desperate by depressing emotions will go.

The friends and pupils of Dr. George Johnson have just presented him with his portrait by Mr. Holl, on the occasion of his retirement from the professorship of Clinical Medicine, after forty-five years service at King's College and King's College Hospital.

The first report of the work done at the Margaret Williamson Hospital, an American missionary undertaking for the treatment of Chinese women and children, has been published at Shanghai, by Dr. Elizabeth Reifsnyder, Physician-in-charge. It is a well-printed pamphlet of twenty pages, and gives a creditable showing of the relief furnished in the two years ending December 31, 1887: 54,000 patients were received at the Dispensary, and about the same number of prescriptions issued. The Hospital is closed in August and September of each year. The report states that there is already need for larger accommodations and more help; on one very busy day, there were fifty patients turned away. This institution is truly a bright spot in a benighted region.

We regret to read the announcement by a cablegram from London, dated June 28th, of the death of Dr. J. Milner Fothergill, a medical author well known on both continents. It is less than twenty years ago that he first appeared in print; in 1870, he took the Hastings Prize of the British Medical Association. Several of his writings have been reproduced in this country, in the case of one of his books, even to its third edition, and he was a frequent contributor of letters and papers to our American journals.

Dr. Benjamin King, one of the oldest officers on the retired list of the army, died June 24th, in his ninety-second year. He was graduated from West Point in 1807 and served in the war of 1812. He acted as surgeon in the Seminole war and in the Mexican war. He was put upon the retired list about twenty-seven years ago.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section in Pædiatrics.

Stated Meeting, June 27, 1888.

The Chairman, J. Lewis Smith, M.D., Presiding.

Dr. A. Jacobi made some

REMARKS ON SUMMER COMPLAINT,

with special reference to their etiology.

Dr. A. V. Meigs, of Philadelphia, then read a paper on

THE DIETETIC MANAGEMENT OF THE SUMMER DIARRHŒA OF INFANTS.

(See page 4.)

Dr. S. Baruch then presented a

CLINICAL STUDY OF THE ETIOLOGY AND TREATMENT OF SUMMER DIARRHŒA OF INFANTS.

(See page 8.)

Dr. George B. Fowler then reported some

EXPERIMENTS WITH DIFFERENT SPECIMENS OF PEPSIN.

No pure pepsin is in use, he said. The various specimens in the market are prepared from the mucous membrane of the hog's stomach, with varying degrees of care and varying results as to purity. The mucous membrane is first scraped, and, with the pepsin, the mucus of the glands is also removed. A glycerin extract is then made, the pepsin is precipitated, but, as it precipitates, the mucus precipitates also. New extracts are then made, and new precipitates formed; and, finally, the extract is dried, the product being commercial pepsin.

In the experiments which were made, thirteen different specimens, by as many manufacturers, were taken, one grain of each being used for the test. Each specimen was placed in a ten ounce bottle, which also contained eight ounces of a one-half per cent. solution of hydrochloric acid, and twelve hundred grains of egg albumen, which was to be digested. Each bottle was kept at a temperature of 100° F., for six hours, being agitated every half hour, and then allowed to cool. An additional bottle containing the same quantity of albumen and acidulated water, but no pepsin, was placed by the side of the others, for the purpose of comparison with those in which digestion was being accomplished. The results varied greatly. All the albumen was digested, and a clear solution obtained by the pepsin of Parke, Davis & Co. That of Fairchild Bros. & Foster and that of Hawley, were nearly as good. Most of the other specimens showed very weak digestive properties.

Another series of experiments was also made with various medicinal agents, to ascertain the extent to which they operated as inhibitors of digestion, the medicinal substances being placed in bottles similar to those previously described, and containing the same quantity of pepsin, egg albumen and acidulated water.

Salicylate of soda, in twenty grain portions, stopped digestion, apparently fixing the hydrochloric acid. After six hours, digestion had not begun. When portions of three grains were used, digestion was retarded two hours.

Portions of twenty grains of sulphate of quinine stop-

ped digestion, no change having taken place after six hours. When five grains were used, digestion was retarded; when three grains were used, no retarding effect was apparent. Mariani wine also inhibited digestion; half ounce portions caused a chocolate-colored precipitate, no digestive action being apparent.

Acetate of lead, in two grain portions, had no apparent inhibitory effect. Tincture of the chloride of iron, in thirty drop portions, inhibited digestion, its astringent action upon the albumen being very apparent.

Salol, in ten grain portions, caused slight delay in digestive action.

Antifebrin and antipyrin had no apparent inhibitory effect, the same being true of bichloride of mercury and calomel.

Chalk mixture, tincture of kino and tincture of catechu all showed their astringent action, and either delayed or entirely prevented digestion. Resorcin had no inhibitory effect. Prepared chalk, in portions of twenty grains, combined with the albumen mechanically, and no digestion took place.

Dr. Caillé responded to Dr. Baruch's statement that the plan which he (Caillé) had proposed for sterilizing milk would not accomplish it. Dr. Caillé had not intended that the term should be used in an exact sense, but only that the method suggested sterilized the milk relatively to raw milk. He thought the conclusions of chemists and bacteriologists, in regard to such diseases as *summer complaint* and the action of foods and drugs, were unsatisfactory, and that we could arrive at trustworthy conclusions for clinical purposes only by means of collective investigation. This would enable us to find out why some children thrive on certain kinds of food, and others do not.

Dr. Hanwood expressed surprise that, in the papers which had referred to feeding, nothing had been said about condensed milk, which, by its mode of preparation and its abundance of sugar, offers great advantages as a food for infants. He had, to his satisfaction, investigated the method by which it was prepared and, in practice, he found it more useful than any other form of food.

Dr. A. Jacobi adhered to the opinion which he had expressed in his writings, that condensed milk is not a good food for infants. With reference to the experiments of Dr. Fowler, he was not convinced that tincture of iron is not useful in the treatment of *summer complaint*. One never gave it in thirty drop doses, and it had usually been found efficient and not harmful to the digestive function, when given in small doses. Of course, the administration should be stopped when the stomach became rebellious. It should be remembered that carbonate of lime neutralizes whatever it combines with, and thus delays digestion. This should teach us that alkalies (with, perhaps, the exception of bicarbonate of soda) should not be given after, but before eating. Their action then will be very beneficial, for they will neutralize the harmful fatty acids which are in the stomach at that time, and prepare the organ for the proper performance of digestion.

Dr. Meigs did not agree with Dr. Baruch, that diarrhœa in hand-fed children is rare in winter. Infants with diarrhœa frequently come into the hospitals in the winter-time and die from it. With others, it begins in the hospital, and is alike fatal. It is true that these children were badly nourished and predisposed to diseases of such a character. He thought the consensus of opinion now is that if cow's milk be used as an infant food it should be diluted, and that cream and milk sugar should be added. This makes it quite similar to to woman's milk, which must be the standard.

Dr. Baruch objected strongly to the use of condensed milk, believing it to be one of the most pernicious forms of food which are given to children.

THE ONTARIO MEDICAL ASSOCIATION.

The Eighth Annual Meeting, held at Toronto, June 13 and 14, 1888.

(Specially reported for The Medical News.)

(Con inued from page 720)

Thursday, June 14th.

Dr. Hunt, of Clarksburg, reported a case of

IDIOPATHIC GLOSSITIS,

the only one he had met in twenty years' practice. The patient was a farmer, aged thirty-five years. The tongue swelled so as to fill the mouth and protrude from it. He was in this condition when Dr. Hunt first saw him. Free incisions were made into the tongue, with much relief. Next day there was again great distress and dyspnœa, and laryngotomy was resorted to, quite relieving the difficulty of breathing. He improved rapidly and the tube was removed. Three days after the laryngotomy his bedroom was scrubbed, and he returned to it while the floor was still wet. He soon began to suffer from dyspnœa, and he was almost moribund, six hours later, when Dr. Hunt saw him. The tube was reinserted, but it was too late; death took place immediately.

Dr. C. M. Smith, of Orangeville, read a paper on

THE TREATMENT OF COMPOUND FRACTURE OF THE LOWER THIRD OF HUMERUS — A NEW APPLICATION OF SAYRE'S SHORT-HIP-SPLINT.

He showed the modified splint and its application on a patient he presented, in whom there had been a severe compound fracture of the lower end of the humerus. The result was eminently satisfactory, though for a time it was doubtful if the arm could be saved.

Dr. William Gardner, of Montreal, read a paper on

RUPTURED TUBAL FŒTATION CYSTS,

and related a case. The patient, aged twenty-nine, was married in July, 1887, and had an ordinary miscarriage in the following October. From this she recovered easily. Menses appeared normally on the 2d December. Patient remained well during the rest of the month, except for some of the signs of pregnancy slightly marked. Early in January a slight bloody discharge appeared, lasting two weeks. It was unlike menstrual blood. About the middle of January she was seized with intense pelvic pain and collapse, which lasted two days. During this period Dr. Browne, her medical attendant, feared that she would die, but she slowly rallied and made a partial recovery, but at the end of a fortnight later, early in February, there were alarming recurrences of pain and other symptoms. Dr. Gardner was then asked to see the patient, Dr. Browne stating that he believed the case to be one of extrauterine gestation. The patient was found to be suffering from severe pelvic and abdominal

pain, with great distention. The pain was not controlled by full doses of morphia; vomiting was frequent; the pulse weak and rapid. Vaginal examination revealed a free bloody discharge; fixation, softening and increase of bulk of the uterus, and to the right and behind it a firm, painful swelling. The use of electricity was precluded by the evident hemorrhage and peritonitis.

The abdominal cavity was opened, and a quantity of blood-clot of varying age and bloody serum removed. A ragged, friable, granular mass, an expansion of the right Fallopian tube, was torn away in attempting to raise it to the edge of the wound to apply the ligature. No ligature was applied. The abdomen and pelvic cavity were washed out and drained. When put to bed the condition of the patient was alarming, the pulse was 140 and very weak. She steadily rallied and made a complete though tedious recovery, the tediousness being due to cystitis. On examining the substance removed, a blood-stained fœtus about one inch in length was discovered, as well as ample evidence of chorial villi. The fœtus had evidently been dead for some time, probably from the date of the first urgent symptoms, the state of things indicating clearly that electricity would have been of no use at any time after the patient had called in her doctor.

Dr. Gardner remarked on the difficulty of diagnosis, which probably, however, is not so great as often imagined, and not greater than in some cases of uterine pregnancy. Having made a diagnosis of extrauterine pregnancy—as the great majority of the cases are tubal—the question of treatment arises. Practically this may be considered under three heads. Fœticide by electricity, abdominal section to remove the fœtation cyst and expectancy. There is much difference of opinion on the question of treatment at the present time.

Electricity.—The faradic current is to be selected. It is simple and easy to apply, and the apparatus almost always at hand. Its use is opposed *in toto* by some eminent abdominal surgeons, yet there is a mass of evidence in its favor so large that its position seems unassailable. The author has published a successful case (*Canada Med. and Surg. Journ.*, August, 1885), in which the evidences of correct diagnosis and cure were as complete as anything could be, short of seeing the fœtus or chorial villi.

Mr. Lawson Tait, Dr. Imlach, Dr. Johnston, Dr. Janvrin and others say that as soon as the diagnosis is made we must open the abdomen. In support, they say that it is very rare that the diagnosis is made until pain and collapse supervene, which, they say, indicate rupture, and not merely contraction or distention of the tube, as believed by the advocates of electricity.

Unfortunately, and this is the strong point of the case for the advocates of immediate section, the first symptoms demanding medical aid may be those of the fatal rupture, and, as Dr. Herman says, if we judge of the fatality of extrauterine pregnancy by the results of abdominal section and post-mortems, we must regard it as being great; but there is no doubt that extrauterine fœtation is far more common than is generally supposed, and that rupture with hemorrhage, and escape of the fœtus into the peritoneal cavity, often occurs, and is recovered from by absorption of both blood and fœtus. There are clinical facts in plenty to prove this. The fact, however, remains that whenever the diagnosis is made, and when the symptoms are serious, and whenever there are serious symptoms of a doubtful character, this grand life-saving operation must be done to enable us to deal as best may be the case with the condition found.

The author's case goes to prove that even after there is every evidence of the death of the fœtus by electricity, symptoms may subsequently arise to render necessary abdominal section. It may be premised that the earlier the stage of pregnancy at which fœticide is effected, the less likely are after-symptoms to arise.

Expectancy.—Presuming the case to occur in thoroughly experienced and competent hands, the diagnosis to have been made, and the symptoms severe, an expectant treatment must be condemned. It will be proper only in doubtful cases with mild symptoms.

DR. SAMUEL CLARK, of Toronto, read a paper on

NEURASTHENIA.

He divided neurasthenics into three classes: 1st. Those who were physically in good health, but mentally unbalanced, although not insane. 2d. Those who were anæmic, and, consequently, weak in body. 3d. Those who were afflicted with such neurosis as lead to or evoke this disorder.

Dr. Clark strongly deprecated the use of narcotics, except in very extreme cases. Three hours of natural sleep had more recuperative power in them than could nine hours of drugged quietude. The principal medicines he used were such as the arsenites, phosphide of zinc, nux vomica, pyrophosphate of iron, cod-liver oil and the like.

(*To be concluded.*)

CORRESPONDENCE.

THE EXTERNAL USE OF SULPHUR IN SCIATICA.

To the Editor of THE MEDICAL NEWS,

SIR: In the May number of *The American Journal of the Medical Sciences*, page 109, I notice a recommendation, from the *Revue de Thérapeutique*, of the external use of sulphur as a remedy for sciatica, which is spoken of as an "extraordinary statement," etc., leaving the impression on the reader that you consider the external use of sulphur in sciatica as something original with Drs. Mussy and Duchesne.

The external use of sulphur in powder for sciatica is an old, popular English remedy. Fuller, in his well-known classic work on *Rheumatism, Rheumatic Gout and Sciatica*, third edition, page 472, says: "Nothing, however, proves more generally efficacious than sulphur, applied externally. Whatever its mode of operation, the fact remains that, employed in this manner, it often subdues pain which has persisted in spite of all other remedies. In many parts of England, the sulphur ointment of the Pharmacopœia is a favorite remedy amongst the poor for the cure of rheumatism, and I am indebted to one of my hospital patients for directing my attention to the subject. He was a man, forty-three years of age, who had been afflicted with sciatica in a severe form about five months. He had undergone a long course of medical treatment before he applied at the hospital, but without obtaining the least mitigation of suffering, when a friend induced him to put sulphur in his boots, and otherwise apply the remedy externally. In four days, he was much relieved, and, in less than a fortnight, had recovered

perfectly. Since that time, I have used it in seventeen chronic, non-inflammatory cases; and, in only six, did it fail in giving relief.

"The mode in which I usually employ it is to sprinkle thickly with precipitated sulphur a piece of new flannel, in which the whole of the affected limb is to be encased, from the foot upward. Whatever the precise influence it exerts in sciatica, there cannot be any doubt that its beneficial effects are most strikingly displayed in chronic cases, unattended by any symptoms of inflammation."

Fuller refers to Dr. Nicholson's special treatment with sulphur in the cure of rheumatism in 1820, and to an article by Mr. George Tucker, *Lancet*, March 7, 1835.

I feel like apologizing for troubling you with this unimportant historical matter, but for the fact that sciatica is so frequent, so obstinate, and so painful and distressing to the patient. I never fail to try sulphur in most cases of sciatica and chronic rheumatism which show an obstinacy in yielding to the more commonly used remedies, and I always send my patients with sciatica and chronic rheumatism first to sulphur springs, when sending them to any springs. It has been my custom while using sulphur externally, as advised by Fuller, to administer it freely internally, and, when there is anæmia, to combine it with iron; for instance, my usual formula is

℞.—Sulphur. (præcip.),
Ferri carb. . . . . āā ℥iv.
Glycerini . . . . . ℥iv.
Aquæ gaultheriæ . . . . ad ℥iv.
A teaspoonful every two hours.

I also frequently use this formula in the treatment of the diseases which seem to have a rheumatic tendency, such as diphtheria, scarlet fever, chorea, etc.

W. F. McNutt, M.D.

NEWS ITEMS.

The Clinical History of the Case of the Late German Emperor.—Dr. Morell Mackenzie has published in the *British Medical Journal*, of June 23d, the following clinical history of the late Emperor Frederick's illness. The first definite symptoms of the illness, which, on June 15th, deprived Germany of a truly enlightened ruler and the world of a most noble-hearted man, appear to have shown themselves in January, 1887. There is said to be a somewhat remote history of cancer in the family, and for many years, the late emperor suffered from a certain delicacy of the throat. In 1886, he had an attack of measles, from which he recovered without any bad after-effects, but it was noticed that he never quite regained the high spirits for which he had before been remarkable. In the latter part of the same year, he suffered from a succession of obstinate "colds," which finally culminated in such extreme and persistent hoarseness that his physician in ordinary, Dr. von Wegner, called in Dr. Carl Gerhardt, Professor of Medicine in the University of Berlin, and a recognized authority on diseases of the throat. On laryngoscopic examination, a small growth was seen springing from the left vocal cord and interfering with its action. This was, in great part, destroyed by the electric cautery, and in the spring, the illustrious patient was sent to Ems, where it was hoped that the waters would complete the cure. The symptoms, however, returned with greater severity, and the growth increased in size so rapidly that suspicion of its being malignant was excited.

Professor Ernst von Bergmann, the leading surgeon in Berlin, and, soon afterward, Professor Tobold, one of the pioneers in laryngology, were consulted, and it was agreed that an operation was desirable in order to determine the nature of the disease, and, if possible, extirpate it. With this view, it was proposed to perform thyrotomy in the first place, and, if necessary, to follow this up by such further surgical measures as the circumstances of the case might seem to call for. Before carrying this plan into execution, however, the medical attendants, being fully alive to the vast responsibility of their position, were anxious to have the advice of some laryngoscopic authority whose opinion would command general respect. It was unanimously decided to call in Sir (then Dr.) Morell Mackenzie, who accordingly proceeded to Berlin on May 20th. He found a sessile growth, about the size of a split pea, but oval in shape, situated on the posterior extremity and inner surface of the left vocal cord, the mobility of which was distinctly impaired. There was general congestion of the mucous membrane of the larynx. Dr. Mackenzie did not consider the clinical evidence as to the character of the affection decisive one way or the other, and suggested that, before any further steps were taken, a portion of the growth should be removed through the mouth and examined microscopically. He succeeded in thus extracting two or three fragments, which were at once submitted to Professor Rudolf Virchow. That eminent pathologist having failed to find any trace of malignant structure in them, it was unanimously agreed that Dr. Mackenzie should take the case into his own hands for a time, and should attempt to eradicate the disease, without external operation.

In June, the Emperor (then Crown Prince) came to England, and Dr. Mackenzie removed the remaining portion of the growth. After examination, this was, on July 1st, pronounced by Professor Virchow, to be a "hard, compressed warty growth that has started from a moderately irritated and thickened surface, and the examination of its base has not afforded the least support for the idea of a new formation penetrating inward." The voice was at this time so much improved that, on July 14th, the Prince, in visiting the Throat Hospital, made a little speech to the patients, in which he expressed a hope that they might be cured as quickly as he had been. The larynx, however, remained somewhat irritable, and the whole throat showed a tendency to become congested on very slight provocation.

At the beginning of August, there were signs of recurrence of the growth, and Dr. Mackenzie, on two occasions, applied the electric cautery with the result of destroying it entirely. The Prince then went to the Isle of Wight, the climate of which, however, proved too relaxing, and his throat gave him a good deal of trouble. Dr. Norris Wolfenden, who attended him while there, observed at the back of the larynx a slight thickening of the mucous membrane in the form of a ridge, extending horizontally from the base of one arytenoid cartilage to the other. The action of the vocal cord was still somewhat defective, as it had been in Berlin. The bracing air of Braemar was next tried, and considerable improvement took place in the local condition; the

thickening just mentioned was absorbed, the congestion of the larynx disappeared, and the affected cord moved more freely. Early in September, however, there was a relapse, and on the 18th of that month, while the Prince was at Toblach, in the Tyrol, Mr. Mark Hovell, who had succeeded Dr. Wolfenden, noticed a swelling half an inch below the left cord and parallel with its free border. This increased in size; œdema of the left aryteno-epiglottic fold supervened, and there was some constitutional disturbance. The acute symptoms passed off in a few days, and the Prince proceeded to Italy.

Toward the end of October, active hyperæmia of the whole interior of the larynx came on somewhat suddenly; the swelling under the left cord increased in size and began to ulcerate, and a reddish projection was noticed below the right cord. Early in November, the appearance was so ominous that it was thought expedient to have further advice, and Professor Leopold von Schrötter, of Vienna, Dr. Moritz Schmidt, of Frankfort, and Dr. (now Professor) Hermann Krause were summoned to San Remo. After consultation, the diagnosis of cancer of the larynx was arrived at, and the propriety of a radical operation was discussed. The illustrious patient, having fully considered the question, decided not to submit himself to any procedure involving immediate risk to life, but to take his chance with treatment of a purely palliative kind. From this point onward, the disease made steady progress, with occasional exacerbations of the symptoms, owing to the intercurrent development of inflammatory processes in various parts of the larynx. These, in the early part of this year, became so pronounced as almost entirely to mask the essential disease, and hopes were entertained by some of the physicians that the affection might after all prove to be one of perichondritis depending on chronic laryngitis of exceptional severity.

About the end of January, the glottis began to be encroached on to a serious extent, and, on February 9th, tracheotomy became necessary. Professor von Bergmann was telegraphed for, but, before he could reach San Remo, the dyspnœa became so urgent that the operation was performed by Dr. Bramann in the presence of Sir Morell Mackenzie, Dr. Krause, Dr. Schrader and Mr. Hovell. The Prince did not rally from the effects of the operation for some time, and it became clear that the general health was beginning to give way. It was feared that secondary formations had developed in the lungs; but Professor Küssmaul, who was summoned, could find no evidence of such a complication. Soon afterward, however, Professor Waldeyer, to whom, in the absence of Professor Virchow, the microscopical examination of the expectorated matters had been entrusted, pronounced the laryngeal affection to be cancerous. The tracheotomy wound was for a few days in a very unhealthy state, and there was a good deal of suppuration. Great difficulty was experienced in finding a tube to fit comfortably in the wound, and finally Sir Morell Mackenzie was obliged to fashion one with his own hands. The illustrious patient thereupon recovered his appetite, and was able to sleep; and he regained his strength to such a degree that when his father, the Emperor William, died on March 9th, he insisted on returning at once to Germany, although the weather was most inclement.

At Charlottenburg, the new Emperor was able, for a time, to discharge many of the duties of his exalted position, and he threw himself into the conduct of State affairs with such energy that his physicians were anxious to get him away from the neighborhood of Berlin. On April 13th, the tracheotomy tube became partially blocked by a mass projecting into its lower end, and some difficulty occurred in replacing it by a longer one. There was a good deal of hemorrhage, the blood finding its way into the lungs and setting up bronchitis. Diffuse suppurative inflammation of the loose tissue surrounding the trachea ensued, and for some days there was considerable pyrexia with occasional rigors. Apprehensions were felt that pyæmia was setting in, but the general condition improved on the establishment of a profuse purulent discharge which continued more or less till the end. In May, the inflammatory element in the case underwent a notable abatement, and there was a pause in the progress of the disease for two or three weeks. At this time, Professor Virchow again examined some of the discharge, without finding in it anything that, to his mind, was a proof of cancer.

On June 8th, it was obvious that a fresh complication had occurred; difficulty of swallowing came on, and it was thought that perforation into the œsophagus had taken place. On June 9th, Trendelenburg's tampon canula was substituted for the ordinary tracheotomy tube, with the view of preventing the food from escaping into the air-passage. The Emperor meanwhile was losing ground very fast, and, on the 13th, Sir Morell Mackenzie had to feed him with the œsophageal tube. On the evening of the 14th, pneumonia rapidly supervened, and death took place on the forenoon of the 15th.

The *post-mortem* examination, which was made on June 16th, by Professor Virchow and Dr. Langerhans, in the presence of Sir M. Mackenzie, Drs. von Wegner, von Bardeleben, von Bergmann, Waldeyer and Bramann, and Mr. Hovell, proved that the disease was cancer, complicated by suppurative inflammation of such intensity that the whole structure of the larynx was destroyed, its place being taken by a large abscess-cavity. Although a summary of the results of the *post-mortem* examination has already appeared in the daily newspapers, we regret that we are unable to give the full report, as orders were issued at the last moment that it should not be published.

Before the necropsy was made, Sir Morell Mackenzie, at the request of Prince Bismark, drew up the following report of the case, which he presented to the new Emperor, and which was deposited among the State archives:

"In my opinion, the disease from which the Emperor died was cancer. The morbid process probably commenced in the deepest tissues of the cartilaginous structures of the larynx, and they became affected at a very early date. A small growth, which was present when I first examined the late Emperor, was removed by me by several operations ,and all the portions taken away were submitted to Professor Virchow. He was unable to detect in them any evidence of the existence of cancer. Examinations made, at the beginning of March, by Professor Waldeyer, however, led to the belief that cancer was then present. Whether the disease was originally cancerous or assumed a malignant character some months after its first appearance it is impossible to state. The fact that perichronditis and caries of the cartilages played an active and important part in the development

of the disease no doubt largely contributed to make it impossible to form a decided opinion as to its nature till quite a recent date."

"MORELL MACKENZIE."

The National Association of Railway Surgeons met in convention, in Chicago, last Thursday. An election of officers resulted as follows:

President.—John W. Jackson. M.D., of Kansas City.

First Vice-President.—Dr. Murphy, of St. Paul.

Second Vice-President.—J. B. Murdock, M.D., of Pittsburg.

Third Vice-President.—A. W. Reidnour, M.D., of Massillon, Ohio.

Fourth Vice-President.—B. L. Hover, M.D., of Rochester.

Secretary.—C. B. Stemen, M.D., of Fort Wayne.

Assistant Secretary.—J. H. Tressel, M.D., of Alliance, Ohio.

Corresponding Secretary.—E. R. Lewis, M.D.

Treasurer.—J. Harvey Reed, M.D., of Mansfield, Ohio.

In Memory of Prof. Bodley.—At a meeting of the Faculty of the Woman's Medical College, held June 20, 1888, the following action was taken on the death of Prof. Bodley.

Whereas, our honored Dean and Prof. of Chemistry, Rachel L. Bodley, has been suddenly removed by the hand of death from the arena of earthly activities, in so many of which she was deeply interested;

Resolved, that we, her colleagues in the Faculty of the Woman's Medical College, of Pennsylvania, recognize, in the removal of our senior member, the loss of one most familiar with the historical and traditional features of our College and its past work.

She was thoroughly acquainted with the ardous duties of Dean, which she performed most ably and acceptably, and in which her wise administration secured for the college friends whensoever her influence was exerted.

She was keenly alive to the personal as well as educational requirements of the students, so many of whom, coming as strangers from far distant lands, found in her a friend earnestly solicitous for all that concerned their welfare, and ever ready to do all in her power to further their interest.

She was an able teacher of chemistry, striving successfully by word and illustration to elucidate the intricate problems of her branch.

Religiously devout, she at once placed before those with whom she came in contact a high standard, socially and morally, and did much to establish the same for the college, to the service of which her efforts and indeed her lips were so unsparingly, unceasingly and ungrudgingly devoted.

Possessed of an acquaintance among people in all lands, through her college relations and affiliations, her usefulness to us and to the world can scarcely be overestimated, so varied and extensive had it become.

As a friend, she was genial, kindly, courteous ever, and we shall greatly miss her quiet dignity in our Faculty meetings. In the entire round of college work, with the extensive ramifications of which she was so thoroughly familiar, we feel her loss to be almost irreparable.

Resolved, That these resolutions be transcribed in full upon our book of minutes, and a copy sent to her aged mother.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 26 TO JULY 2, 1888.

BAXTER, J. H., *Colonel and Chief Medical Purveyor.*—Will proceed to New York City on public business connected with the Medical Department, and on completion thereof will return to his station in Washington City.—*S. O. 150, A. G. O.*, June 29, 1888.

OWEN, WILLIAM O., JR., *Captain and Assistant Surgeon.*—Ordered to Fort Leavenworth, Kansas, for duty.—*S. O. 148, A. G. O.*, June 27, 1888.

WOODHULL, A. A., *Captain and Surgeon.*—Granted leave of absence for three months, to take effect about July 10, 1888.—*S. O. 148, A. G. O.*, June 27, 1888.

So much of par. 3, S. O. 142, A. G. O., June 20, 1888, as relates to GEORGE H. TORNEY and GEORGE MCCREERY, *Captains and Assistant Surgeons*, is revoked.—*S. O. 147, A. G. O.*, June 26, 1888.

WOOD, MARSHALL W., *Captain and Assistant Surgeon.*—Ordered to Fort Randall, Dakota Territory, for duty.—*S. O. 147, A. G. O.*, June 26, 1888.

SHANNON, WILLIAM C., *Captain and Assistant Surgeon.*—Ordered to Fort Meade, Dakota Territory, for duty.—*S. O. 147, A. G. O.*, June 26, 1888.

MCCREERY, GEORGE, *Captain and Assistant Surgeon.*—Ordered to Fort Warren, Mass., for duty.—*S. O 147, A. G. O.*, June 26, 1888.

JOHNSON, RICHARD W., *Captain and Assistant Surgeon.*—Designated as Medical Officer for a camp of instruction in rifle practice, to be established at Fisher's Island, N. Y. (near New London, Conn.), on July 2, 1888, and to continue during the months of July, August and September, and is ordered to proceed to Fisher's Island in proper season and report to the commanding officer for duty.—*S. O. 131, Division of the Atlantic* June 28, 1888.

GANDY CHARLES M., *First Lieutenant and Assistant Surgeon*—Granted leave of absence for three months, to take effect on or after July 5, 1888.—*S. O. 145, A. G. O.*, June 23, 1888.

CLENDENIN, PAUL, *First Lieutenant and Assistant Surgeon.*—Leave of absence granted in S. O. 59, Department of Texas, June 4, 1888, extended one month.—*S. O. 149, A. G. O.*, June 28, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JUNE 30, 1888.

Surgeon A. M. MOORE ordered to Naval Station New London.

AUSTIN, A. A., *Passed Assistant Surgeon*—Detached from "Gedney" and wait for orders.

OWENS, THOMAS, *Assistant Surgeon.*—Detached from Naval Station, New London, and ordered to Coast Survey Steamer "Gedney."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JUNE 30, 1888.

VANSANT, JOHN, *Surgeon.*—Granted leave of absence for ten days. June 25, 1888.

MEAD, F. W., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days. June 28, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, JULY 14, 1888. NO. 2.

ORIGINAL LECTURES.

THE CEREBRAL PALSIES OF CHILDREN.

Clinical Lectures delivered at the Infirmary for Nervous Diseases.

BY WILLIAM OSLER, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA, PHYSICIAN TO THE PHILADELPHIA AND UNIVERSITY HOSPITALS AND TO THE INFIRMARY FOR NERVOUS DISEASES.

LECTURE I.

INTRODUCTION. INFANTILE HEMIPLEGIA.[1]

INTRODUCTION.—Dividing the motor path into an upper, cortico-spinal, segment, extending from the cells of the cortex to the gray matter of the cord, and a lower, spino-muscular, extending from the ganglia of the anterior horns to the motorial end plates, the palsies which I propose to consider in these lectures have their anatomical seat in the former, and may result from a destructive lesion of the motor centres, or of the pyramidal tract, in hemisphere, internal capsule, crus or pons.

Certain general features define sharply from each other palsies of the upper and lower portion of the motor path. When the latter is affected as in the common infantile spinal palsy, poliomyelitis anterior, we have the combination of paralysis with rapid wasting, early loss of reflexes, absence of rigidity and marked changes in the electrical reactions. On the other hand, in involvement of the upper segment, when the lesion is cortico-spinal, anywhere from the motor cells of the cerebrum to the gray matter of the cord, there is paralysis with spasm or disordered movements, exaggerated reflexes, neither rapid nor extreme wasting and normal electrical reactions.

The clinical picture presented by diseases of the upper segment is very varied, depending partly on the nature, partly on the extent of the lesion; and while on certain grounds it would be preferable to classify and consider the affections on an anatomical, or, perhaps, better still, on an etiological basis, we may, for clearness and convenience, adhere to custom and classify the cases according to the distribution of the paralysis, whether hemiplegic, diplegic or paraplegic. The cases are usually arranged under the generic terms cerebral palsies—the German *Cerebrale Kinderlähmung*—or spastic palsies, while the specific designation indicates the distribution of the paralysis, whether unilateral, bilateral, or paraplegic.

Without entering into historical details, it will be sufficient to note that the publication, in 1884, of Strümpell's paper[1] seems to have aroused special interest in the subject. Since then, the monographs of Gaudard[2] and of Wallenberg,[3] the contributions of Ranke,[4] Bernhardt[5] and Kast,[6] in Germany, of Jules Simon,[7] Richardiere,[8] Jendràssik and Marie,[9] in France, of Ross,[10] Hadden,[11] Wolfenden,[12] Abercrombie[13] and Gowers,[14] in England, have extended and systematized our knowledge of these cases.

The valuable papers by McNutt,[15] Sinkler,[16] Wood,[17] Hatfield,[18] Knapp,[19] Bullard and Bradford,[20] Seibert, Caillé, J. Lewis Smith,[21] and quite recently Lovett,[22] show that the question has not failed to attract the attention of American observers.

It is a pleasure to speak specially of the work of Dr. Sarah J. McNutt, of New York, which Gowers has recently characterized as "by far the most valuable contribution to medical science that the profession has yet received from members of her sex."

The kindness of my colleagues, Dr. Weir Mitchell and Dr. Wharton Sinkler, has enabled me to utilize their cases as well as my own, and makes the material upon which these lectures is based exceptionally large, much larger in fact than has been heretofore analyzed from any clinic. I have to thank, also, Dr. Kerlin, of the Pennsylvania Institution for Feeble-minded Chil-

[1] I am indebted to Dr. C. W. Burr, the resident physician, for much valuable assistance in the preparation of these lectures.

[1] Ueber die Acute Encephalitis der Kinder. Jahrbuch für Kinderheilkunde, 1884; and his Text-book of Medicine, by Shattuck. New York, 1887, p. 704.

[2] Contribution l'étude de Hémiplégie cérébrale infantile. Geneve, 1884.

[3] Ein Beitrag zur Lehre von den Cerebralen Kinderlähmungen. Jahrbuch für Kinderheilkunde, 1886.

[4] Ueber Cerebrale Kinderlähmung. Jahrbuch für Kinderheilkunde, 1886.

[5] Hemiplegia spastica infantilis. Virchow's Archiv, Bd. 102.

[6] Archiv f. Psychiatrie, Bd. xviii.

[7] De la Sclérose cérébrale chez les enfants. Rev. men. des Maladies des Enfants, t. i. and ii.

[8] Etude sur les Scleroses encéphaliques primitives de l'enfance. Havre, 1885.

[9] Archiv. de Physiologie, 1885.

[10] Brain, vol. v.

[11] Brain, vol. vi.

[12] Practitioner, xxxvi.

[13] Hemiplegia in Children. British Med. Journal, 1887, i.

[14] Diseases of the Nervous System. London, 1887, vol. ii. On Birth Palsies. Lancet, 1888, i.

[15] Double Infantile Spastic Hemiplegia. Amer. Journ. of the Med. Sciences, 1885, i. Apoplexia neonatorum. Amer. Journ. of Obstetrics, 1885.

[16] Paralyses of Children. THE MEDICAL NEWS, 1885, i.

[17] H. C. Wood: Spastic Infantile Paralysis. Polyclinic, 1886. Nervous Diseases; their Diagnosis. Phila., 1887.

[18] Hatfield, M. P.: Archives of Pædiatrics, 1886.

[19] Knapp: Journal of Nervous and Mental Diseases, 1887.

[20] Bullard and Bradford: Report of Proceedings of Suffolk District Medical Society. Boston Med. and Surg. Journ., 1888, i.

[21] Report of Proceedings of New York Academy of Medicine, January 25, 1888. Journal of the American Medical Association, February 25, 1888.

[22] Boston Medical and Surgical Journal, June 28, 1888.

dren at Elwyn, for placing at my disposal the cases under his care; and to Dr. Wilmarth, his assistant, for anatomical data.

The cases may be arranged as follows:

		Cases.
Hemiplegia.	Infirmary	97
	Penna. Instit F. M. C.	23
	Total	120
Bilateral hemiplegia		19
Paraplegia		11

A total of 150 cases of cerebral paralysis.

It is of interest to compare the relative frequency of the cerebral and spinal forms of infantile paralysis. During the period in which there have been at the Infirmary about 120 cases of the former, there have been nearly 500 cases of the latter, so that the proportion is about 1 to 4.16.

I. INFANTILE HEMIPLEGIA.

Synonyms.—Hemiplegia spastica cerebralis (Heine). Hemiplegia spastica infantilis (Bernhardt). Acute Encephalitis der Kinder (Strümpell). Die Atrophische Cerebrallähmung (Henoch). Agénése cérébrale (Cazanvielh). Sclérose cérébrale, atrophie partielle cérébrale (French writers).

Etiology.—Of the 120 cases, 57 were boys and 63 girls. Right hemiplegia occurred in 68, left in 52 cases.

Age at onset.	Cases.
Congenital	15
1st year	45
2d "	22
3d "	14
4th "	1
5th "	3
6th "	3
7th "	3
8th "	1
9th "	1
10th "	1
Above 10	1
	110
Age at onset not given	9

Thus the greatest proportion of cases occur during the first three years of life.

Of the *congenital* cases, five presented no record of injury during delivery, and the affection was noticed either just after birth, or very early, without definite onset.

Case II.—Joseph C., æt. two years and a half. H., 203.[1] The mother, when pregnant with him, had chorea from the second to fifth month. When born the left arm was cold and white, and the child never used the left side. A squint has developed during the past six months. The left arm and leg are small, stiff and shrunken.

Case XXXV.—Genevieve C., æt. two years and nine months. I. P., 4, 38. Eleventh child, birth normal; no convulsions; dentition normal. After birth, the mother noticed that the child used the left hand rather than the right, and this condition has persisted. The child now walks, but with a hemiplegic gait. Rigidity at the right elbow; contractures; difficult to extend. Intellect defective.

Case XLIII.—Tillie N., æt. twenty-three months. I. P., 3, 185. One of seven children; others healthy. Mother noticed since childbirth a contraction of fingers of right hand, and loss of power in arm; also weakness in right leg, especially at ankle. No history of fever. Born naturally at full term.

Case LXVII.—Henry B., æt. sixteen years. H., 262. Had seven spasms during the first twenty-four hours after birth, followed by loss of power on right side. Began to walk at twenty-two months. Learned to talk easily. Had a talipes equino-varus of right foot, which was operated upon. Began early to have choreic movements of the right side. Goes to school, and is intelligent. The right arm is apparently as well developed as the left, but the muscles are rigid. Very little voluntary motion. At rest, there is frequent spasm of the arm, the fingers are thrown out into irregular movements, and the arm is thrust out at right angles, or jerked behind him. This is very marked on excitement. The right leg is an inch shorter than the left, and not so well developed. When walking the leg is very rigid, and he turns the foot out. The leg is frequently extended when at rest. No rigidity of muscles of neck or face.

Case LXVIII.—Minnie C., æt. eight years. H., 281. Mother noticed that as soon as the child began to crawl and play it seemed paralyzed on the right side. Cannot fix the date of onset; there have not been convulsions. The right arm and leg can be moved, but they are somewhat wasted, and are the seat of irregular choreic movements whenever an attempt is made to use the arm or to walk. There is slight irregular movement on the right side of the face, when talking.

In the first three cases, the condition is stated to have been observed from birth, and, in the last, there was no seizure to indicate the onset, and in it, too, the paralysis was probably congenital. In the fourth case, there were convulsions during the first twenty-four hours similar to those which, as we shall see, usher in the majority of these cases.

Abnormal conditions of the mother during pregnancy, or accidents, are mentioned as possible causes, and, in a few of the cases, we find a record of sudden fright or unusual mental distress; but it is very doubtful how far such influences can be connected with the affection of the child. In such an instance as the following, the fright of the mother early in pregnancy cannot have had the slightest effect in inducing hemiplegia.

Case VIII.—Luther P., æt. four years. H., 279. Is the fourth of five children. Natural labor. Mother states that she was badly frightened at the third month, and to this she attributes the paralysis of the child. Had spasms while teething, but, as early as the third month, it was noticed that he did not use one side well. The right arm and leg are stiff and contracted. Began to walk when two years old. The speech is somewhat affected. Has had only one convulsion since teething.

Except in a few cases, no special mention is made of the existence of nervous disease in the parents, and the following is the only case in which there was a marked history of *alcoholism*.

Case LXVIII.—Florence H., æt. seven years. I. P., 359. Father and mother addicted to drink. Is paralyzed on left side. Can get no history of its origin. Left hand

[1] The letters and numbers after the cases refer to the Hospital Case-books.

shows marked choreic movements. Gait hemiplegic. Has *petit mal*, and, occasionally, severer fits, in which she falls.

I have been rather struck with the vigorous, healthy-looking condition of the mothers with hemiplegic children whom I have seen at the Infirmary.

Syphilis is not often mentioned as a cause of infantile hemiplegia. It was noticed in only two of Gaudard's[1] series, and Wallenberg[2] alludes to it, but does not give any instances. In Abercrombie's[3] series of fifty cases, four of the children had congenital syphilis. The following is the only case on the records in which there seems to be a pretty definite history of this disease.

Case LXIV.—Annie F., æt. two years. I. P. A., 225. Parents healthy. Of nine children, only two are living. Several died immediately after birth. Mother has cicatrices about the mouth and nose, due to a rash which came on during pregnancy. The child was well when born. When eight months old, fell off a chair; was not insensible, but that evening had "spasms." When ten months old, had spasms while cutting teeth. There were fever and a great increase in the general tenderness which had existed all over the body. There was no coma. About a week after the convulsions the mother noticed that there was complete loss of power in the left arm and leg. The child gradually regained use of the leg, and, when a year old, could stand on the leg, but she cannot yet stand alone. There was no facial palsy. *Status præsens:* A pale, but plump child. Is not very intelligent; can say only two or three words. She has thirteen teeth, all beginning to decay. The left arm is not wasted, but is flexed and contracted, and cannot be moved. The fingers are clenched. The left leg is swollen and softer, but there is no difference in the length. Four months ago she began to have spasmodic contractions of the affected arm and leg, lasting for about five minutes, and occurring several times each day. The arm would be jerked up, the leg twitched and the eyes become fixed. No twitching of face. Just before they come on she gets quiet, and, if nursing, drops the nipple. Immediately after, she draws a deep breath, and is then as bright as ever. The child was brought back when eight years old, and note merely says "decidedly idiotic."

The association of paralysis and mental defects with *difficult* or *abnormal labor* has been insisted upon by many writers, and, on several occasions, Dr. Sinkler[4] has called attention to the subject, in connection with cases brought to the hospital.

In two cases the children were born prematurely. In Case LI. the mother had a fall, and delivery occurred at the eighth month. The child, however, throve until the second year, when it had convulsions and became paralyzed on the right side. There was, probably, no connection whatever between the premature delivery and the onset of the disease, but, in the following instance, the affection probably dated from a few weeks after birth.

Case LXVI.—Andrew S., æt. one year. A seven months' child; very thin when born. When three weeks old had many convulsions, very severe. For six months, on and off, there were fits every day. When lifted, and legs stretched, always screamed. When about five or six months old it was noticed that the left arm and leg were not moved. There has been no improvement, and now the fingers are contracted, and the forearm flexed on the arm. Can raise the arm, but does not use it. Left leg as long as right, but the foot seems shorter. Limb flexed at knee, but she can move the leg and toes. Does not sit alone nor stand. Died a week after first visit.

In three of the cases of bilateral hemiplegia the children were born at the seventh month; and in two of the cases of paraplegia the delivery was premature. In twenty-eight of Little's forty-nine cases of spastic rigidity,[1] eight of which were hemiplegias, the birth was premature, in either the eighth or ninth month.

Injury with the forceps.[2] Fissures and fractures of the cranial bones, with hemorrhage or contusion of the brain substance, are well recognized by obstetric writers as among the untoward results of forceps delivery. The parietal bones are most frequently involved. Unless bleeding occurs, or contusion of the subjacent cortex, the effect is not serious. In the special monographs relating to cerebral palsies in children, we do not find many cases of the kind. Thus, in Little's[3] paper, which deals particularly with the relation of abnormal parturition to physical defects in the child, there are only four instances in which the forceps was used, and there is no statement of actual injury. Gaudard,[4] in a review of eighty cases, met with no observation of the kind in the literature, and Wallenberg,[5] in his analysis of 160 cases, notes that in only six instances was difficult labor mentioned as a cause, and he says nothing about the forceps. The Infirmary records contain the following cases, nine in number, in which the children were delivered with forceps.

Case VI.—Ada W., æt. three years. H., 249. No other children. The mother had a convulsion during labor and the child was born with instruments. Very early it was noticed that she did not use the right arm and leg properly, and this continues.

Case XII.—Albert McM., æt. eighteen months. H., 295. Instrumental labor; head slightly injured. Paralysis noticed October, 1884, just after a fall. Whole left side is affected; contractures of arm and wrist. Has no convulsions.

Case XVI.—Mildred M., æt. three months. H., 326. The second child. Was born with instruments. Labor tedious, head locked. Has no marks; well-nourished, healthy child; head symmetrical, a little fuller right than left. Legs never affected, reflexes good. Left arm paralyzed, smaller than right, three-quarters of an inch less in circumference of forearm. Fingers contracted. Improved somewhat under treatment.

[1] Gaudard, loc. cit. [2] Wallenberg, loc. cit.

[3] Abercrombie, loc. cit.

[4] Sinkler: Discussion on Dr. Parvin's paper on Injuries of the Fœtus, THE MEDICAL NEWS, 1887, ii. Palsies in Young Children, Amer. Journ. Med. Sciences, 1875; THE MEDICAL NEWS, 1885, i.

[1] Little: Obstetrical Society Transactions, vol. iii., 1862.

[2] With the revelation of the Chamberlen's secret in the second or third decade of the eighteenth century, and the general introduction of the forceps as an aid to delivery, there was, very naturally, discussion upon the effect of such a measure on the child's head; and to this Sterne gives popular expression when, in *Tristram Shandy* (vols. i. and ii. of which appeared in 1759), he makes the breaking of Tristram's nose by Dr. Slop's forceps the beginning of all his troubles. The possibilities of injury to the "delicate and fine-spun web" of the brain are discussed at length by Shandy, Sr., with the Doctor and Uncle Toby.

[3] Loc. cit. [4] Loc. cit. [5] Loc. cit.

Case XLV.—Mary C., æt. one year. I. P., 49. Parents healthy; was born with forceps. Baby did not use the right arm. Now is unable to set up. Right arm is smaller than left, the flexors are contracted, and the fingers are contracted and stiff. Uses the left leg more than the right. There is strabismus; forehead is narrow, no marks; has never had fits.

Case XLVII.—Clarence H., æt. three and one-half years. M., 5, 314. Elder of two children. Other five months old, well. Born with forceps; bears marks of deep lacerations. At two years began to walk, but badly. Walked in a stooping position and on his toes. Momentary spasm six months ago, thought to be brought on by excitement. Fairly well nourished and very intelligent; speaks slowly. Walks with uncertain, tottering gait. Drags left leg, and often falls forward.

Case LXV.—Estella M., æt. three years. I. P. a., 227. Was delivered with forceps after a long labor; head slightly cut. No convulsions, but for the first three months of life had prolonged screaming spells. Mother does not know whether the child was paralyzed at birth, but when she was three weeks old, she noticed that the left arm and leg seemed perfectly powerless. When one year old, she began to use the leg. Has now paralysis of left arm; can lift it, but the hand is practically useless, though she can move the fingers. The left leg is very little smaller than the right. Gait hemiplegic. Intelligent.

Case LVII.—Kate F., æt. four years. M., 6, 18. Born with instruments; bears mark on face; small spot in skin and nodular thickening on right frontal bone. Never has used left hand and arm and left leg properly; cannot grasp well with left hand. Left hand smaller than right; cannot pick up small objects with the fingers; can walk and run, but not well. Left foot stiff; flexion and extension difficult. Apparent rigidity of ankle-joint. Muscles well developed. Walks on outer side of foot, and chiefly in the ball of foot. Knee-jerk increased very little. Left leg is colder. Is bright and intelligent.

Case LXXVI.—Floyd S. L., æt. six years. I. P_3, 33. Supposed to have been injured at birth by forceps. Was very inert during the first three months of life. After this, the mother noticed peculiar spasms, first in left leg then in right arm. Got well except in the right arm, which is choreic and palsied.

Case XCVII.—Lulu H., æt. five years; the fifteenth child. Others born living. Four children have died, two of convulsions. Mother in labor three hours; forceps applied, as there was some difficulty. Child resuscitated with great difficulty. Bears the scars of the forceps in right temporal region, just within line of the hair, and top of the right ear is scarred. On the left occipital region low down a scar. The wounds did not bleed much. On the second day child had a convulsion, lasting many hours; never has had another. When about three months old, it was noticed that the left hand was not used, and the face was crooked; and at the eighteenth month, when she began to walk, the left leg was seen to drag. *Status præsens:* Well-nourished, intelligent looking child. Head well shaped. Slight scars in above-mentioned regions; bones not apparently injured. Left face atrophied, but the muscles move quite well. Left arm not used; is smaller than the right. Hand not contracted; fingers can be flexed. A little stiffness at the elbow. Gait hemiplegic, left leg dragged; it is a trifle shorter and is smaller than the right. The reflexes are not exaggerated. Knee-jerk not obtainable on either side.

In six of these cases the child is said to have been injured by the forceps, and in all the paralysis was either noticed at once or a few months afterward without definite onset. Only one of these cases (XLVII.) appears to have had spasms.

Trauma. In three cases there was a history of injury to the head, one a penetrating wound, and two the result of falls.

Case XVIII.—J. E. K., æt. twenty-seven years. I. P_1, 131. When eleven months old received a wound on the left side of the head from a pitch-fork, which penetrated the skull from one to two inches, causing immediate paralysis of the right side of the body. Had convulsions after it. In fourteen days began to recover. Was five years before he could walk, and he never has regained the use of the right arm, which is rigid and flexed. Leg is slightly contracted at the knee and is stiff in walking.

Case LXII.—Thomas McK., æt. three years. I. P_3, 355. Parents healthy, birth normal. Several children have had chorea. When six or seven months old, child fell down stairs, striking her head constantly. Some time after, the mother noticed that there were irregular movements in the right hand, and the child has never used it properly. The movements are much increased by voluntary efforts.

Case LXXIX.—Wilhelm S., æt. twenty-nine months. I. P. a, 81. When born, healthy. On the tenth day after birth the mother fell down stairs with him, fourteen steps. The head was not cut or bruised. For eight days he seemed very ill and did not take the breast; did not have convulsions. The head became much swollen—"all out of shape." Has never used the left hand since the fall, and the muscles are now in condition of rigid spasm. Left leg not used so well as right. The right parietal region bulges, the left is flattened, which makes the head very shapeless—right, semi-circumference nine and one-half inches; left, eight and seven-eighths inches. There is a large soft rachitic spot on right parietal eminence, very tender on pressure. Fontanelles closed. Has not had any convulsions.

Ligation of common carotid. In Case VII. of the Elwyn series there is the following remarkable history:

Mary P., æt. twenty-four years. In 1869, when six years old, she had an extensive abscess of the neck following scarlet fever. Ulceration of the right carotid occurred, necessitating ligation, which was performed by Drs. Keys and Getchell. Left hemiplegia followed and has persisted. *Status præsens:* Well grown but slightly built woman. Left hemiplegia. Wrist flexed immovably at right angles; thumb held in palm; fingers flexed, but can be moved a little. Arm somewhat wasted. Drags left foot. Left leg a little wasted. Face not affected. Is bright and intelligent. Is not epileptic.

Infectious disease. It is well known that both cerebral and spinal palsies may follow any of the specific fevers. Gaudard mentions whooping-cough and diphtheria among the possible etiological factors. In Wallenberg's statistics of 160 collected cases, 9 are stated to have followed measles; 13 scarlet fever; 3 diphtheria (and croup); 6 epidemic meningitis; 3 whooping-cough; 4 typhus (abdominalis); and 2 vaccinia.

Marié[1] has reported two cases illustrating the connection between infantile cerebral hemiplegia and infectious diseases; one came on with whooping-cough, the other followed mumps. Abercrombie lays special stress on the importance of this factor, which is noted also by Strümpell, Bernhardt, Gowers and others. In our series, in 16 cases the disease came on in connection with, or just after, an attack of one of the infectious diseases.

Scarlet fever: seven cases.

Case III.—John K., æt. twelve years. H., 231. Family history good. Was well until July, 1880, when he had a bad attack of scarlet fever; ill for two months and had dropsy. Became very thin after the dropsy subsided; had retention of urine. Convalescence slow—had otitis media and a suppurating cervical bubo. The mother noticed loss of power on the right side as the dropsy disappeared. This persists, and the leg is now weak. But both are getting stronger.

Case XIII.—Emma G., æt. seventeen years. H., 300. Was healthy as an infant and child. Has not yet menstruated. When fifteen, had scarlet fever, a severe attack followed by dropsy. Was ordered a warm bath and while in it was seized with paralysis of the right side and loss of speech, and was unconscious thirteen hours. Was in the bath three-quarters of an hour. Had fever which lasted three days. Was in bed for a month. Gradually recovered use of leg. Gait is hemiplegic. Arm stiff at elbow and wrist and is held flexed. Reflexes exaggerated on right side; speech is still a little thick; a little paresis of right corrugator supercilii. Apex beat of heart forcible; loud blowing systolic murmur.

Case XVII.—Wm. Mc., æt. four years. $M._5$, 37. The seventh child; six years elapsed between sixth and seventh. Was well until November, 1884, when he had scarlet fever; had dropsy and also very bad throat with it. Shortly after, he had convulsions and became paralyzed on the right side; recovered power gradually, but has never spoken since. Said a few words just after the spasms. Is a strong, well-built child. No note as to spasm of the right side.

Case XXIV.—John W., æt. four years. $I. P._1$, 139. Was healthy when born; other children healthy. When ten months old could walk and was quite well; was attacked with summer complaint, which left him weak for several months. When two years and three months old, had a *scarlet rash*, from which he recovered and was walking about. Two weeks after, he arose one morning all right, seemed well and took his breakfast. Went to sleep in the morning, as usual, and the mother noticed that he began to pant and the mouth was drawn to the right. For a week he had a series of convulsions and lost power completely in right side and could not speak. In four or five months the speech gradually returned. Began to walk last spring. Convulsions have not returned. Intelligence below par; talks and his memory is good. Right arm feeble and contracted, and the fingers are flexed. Gait hemiplegic and the leg is stiff.

Case XXVIII.—Cassie McA., æt. twenty years. I. P. b., 85. Small, thin, pale girl. When between seven and eight years old had a severe and prolonged attack of scarlet fever, during which she was for a time insensible. Does not know if she had fits. Right-sided hemiplegia came on during the attack and has persisted ever since. The face has improved, but the arm and leg have not grown, and there is a marked spastic condition of the muscles. Muscles respond to induced current.

Case LXX.—Alice R., æt. twenty years. H., 195. Was imperfect in some way at birth; the head was bandaged; was supposed to have water on the brain. She got better; no special feebleness noticed at that time. At ninth month, scarlet fever; feebleness on right side followed. Did not learn to walk until three years old; at first seemed to walk all right, but soon noticed that she turned the right ankle out, for which a brace was applied. At age of ten, the right tendo-Achillis was cut. There was a gradual leaning to the right side, with curvature of the spine. The right arm and leg did not seem to grow proportionately to the left. *Status præsens:* Is emotional. Slight loss of power on right side of face and uncertainty of movements, which are jerky. Great incoördination on attempting to pick up objects with right hand; movements choreic and weak. Some loss of feeling in right hand. Right leg; sensation better than in right arm. Temperature lower on right side than on left. Measurements of right arm and leg from one-half to one inch less than left.

Case LXXXIII.—Annie K., æt. five years. $I. P._3$, 187. Third child. Others healthy. Family history good. When two and a half years old, in October, the child had a mild attack of scarlet fever, followed by whooping-cough; one day the mother noticed at table that the child had suddenly lost power in the leg and arm of the right side, and that the face was drawn. This was quite sudden, without any premonition. The paralysis persisted, though improving. *Status præsens:* Opens and shuts the right hand, but does not use it habitually. Movements of the arm and forearm good, but constant choreic motion, and it is thrown about, particularly behind her, as she walks. The right foot strongly inverted; gait hemiplegic; toes flexed. Walks on the toes and wears out the nails. No special atrophy of the right ride.

Measles: four cases.

Case XXXII.—Richard B., æt. twenty-five years. Con. Dis. 2, 215. Was healthy until eighteen months old, when he had measles, followed by otitis, during which fragments of bone came away. He then had convulsions and left hemiplegia, which latter has persisted. The arm is short and stiff—the forearm much shorter than its fellow. Great stiffness; claw-hand. Hemiplegic gait. He has a little difficulty in speech. Intellect is pretty good. The convulsions became worse about the tenth year, and he now has attacks at intervals of a week or two.

Case LXXXII.—John C., æt. two and a half years. $I. P._3$, 55. Is the fourth of five children. Cut teeth early. Was well and healthy until last autumn, when he had a spasm lasting four hours. Convulsion general. Next day seemed bright and well. Six weeks ago the other children had measles, and this one, on the second day of the eruption, had a convulsion lasting six hours, after which there was right hemiplegia, with loss of speech, which continued two days. Then convulsions began again, with less severity; sometimes more marked on one side than on the other. He had, in all, about eighty fits. In about two weeks there was improvement in the paralysis, which has continued, and he has, for the past two weeks, been walking. No fits since the eruption disappeared. A discharge from the ear began six weeks

[1] Progrès Médicale, 1885, No. 36.

ago; is now stopped. Appears to understand what is said, but not fully. Head large and square, slight depression at anterior fontanelle, which is closed. Is irritable. There are distinct choreic movements of right arm, which he rarely uses, and only when the left is held. There is evidently loss of power. Leg seems to have recovered perfectly.

Case XXXVII.—Bessie K., æt. three years and two months. I. P_4, 73. Well until the eighteenth month; could walk. During the early stage of measles was seized suddenly with spasms and was unconscious for eleven hours. Had vomiting; paralysis of right side noticed immediately after and loss of speech. Has recovered use of leg and can run. Arm affected. Cannot talk. Intelligence not good.

Case I. (Elwyn series).—Jennie S., æt. fourteen years. In institution five years. Was well and strong as a baby until the twelfth month, when she had measles, followed by paralysis of the right side. Is intelligent. Arm stiff; not much wasted. The fingers move irregularly at times. Under the influence of emotion the hand gets very stiff, but when she is quiet it relaxes and she can pick up objects. Leg well nourished; very rigid; drags it much in walking. Knee-jerk not obtainable. No epilepsy.

Whooping-cough: three cases.

Case LXXXVIII.—Given under scarlet fever, which preceded the whooping-cough.

Case LXXXIX.—Kate B., æt. seven years. I. P_3, 248. Has been a healthy child. Last winter had whooping-cough, which lasted into the spring. In May, 1883, had a convulsion, suddenly, which lasted three hours and was followed by paralysis of the right side and aphasia. Did not attempt to walk for two months. Right arm improved, and face did not seem much affected. Gait is hemiplegic. Articulation is now perfect. Can flex and extend the arm and forearm, but has no power over the fingers. Thumb strongly adducted; wrist flexed. There is at times large tremor of the whole arm, especially when at rest. The right leg is stiff, but she drags it. The toes are turned in, but she gets along very well. Intelligence unimpaired.

Case VI. (Elwyn series.)—John D., æt. fourteen years. Difficult, instrumental labor. Well until two years old, when he had whooping-cough, followed by brain fever and left hemiplegia. Arm stiff and wasted; hand flexed; irregular movements in fingers. Leg wasted. Gait hemiplegic. Choreic movements in left facial muscles. Is a low grade imbecile and has epilepsy.

In the following case *cerebro-spinal meningitis* was stated to be the cause of the trouble, but it was most probably a mistaken diagnosis, as the symptoms are just those which occur in the majority of the cases.

Case XXI.—Lily H., æt. four years. I. P_1, 85. Other children healthy. Was normal as a baby. When nineteen months old had an attack which was called cerebro-spinal meningitis; a series of convulsions for eleven days, on recovery from which the left side was paralyzed. When seen again, at the age of six years, there were marked arrest of development of the left arm and spasm and contractions of the paralyzed side.

In one instance the attack came on after *dysentery*.

Case XXII.—Gussie H., æt. six years. I. P_1, 125. Was never a very healthy child. When fourteen months old had a dysentery, after which she had two severe convulsions and coma for several hours, and seemed unconscious for six days. The left side was convulsed for three days. When she roused, it was noticed that the left side was paralyzed—face and extremities. In about three weeks it began to improve. In three months began to walk, and within a year could walk alone. No convulsions since on left side, but one general convulsion. Talks with difficulty. Left-sided spasmodic paralysis. Gait hemiplegic.

Vaccinia: There are two instances in the literature in which the hemiplegia came on during vaccination. One is given by Heine in his work on *Infantile Palsy*.[1]

Case XXVIII. (given in Wuillamier's thesis).[2]—J. L., æt. five months. Well until ninth month; vaccinated, and toward the close of the process there was fever, with a general papular eruption. Convulsions came on, followed by loss of power in the left side. Subsequently, epileptic attacks and feeble-mindedness.

The following case I saw with Dr. Morris J. Lewis.

Case XCIV.—A. L., æt. seven years; a seven months' child, vaccinated by Dr. Gerhard when she was about four months old. During the height of the vaccination there were convulsions, chiefly on left side, which occurred very frequently and were followed by deep coma. It was some time before the paralysis was noticed—some months. Now she has left hemiplegia. Arm wasted; contractions. Gait hemiplegic. Intelligence defective; speaks badly, but she is learning rapidly under systematic instruction.

In five or six cases the children had had convulsions repeatedly before the onset of the hemiplegia, and it is possible that the *convulsions* caused the lesion on which the paralysis depended.

Case XXVI.—Bruce B., æt. nine years. I. P_1, 207. Has had fits since the age of two years, at least once a month. They were general, and he fell in them. Eighteen months ago, after an unusually severe attack, with seven hours of unconsciousness, he awoke paralyzed on the right side; speech not affected; no loss of sensation. In three weeks he began to use leg. Has not had convulsions for a year. There is still difficulty in using the arm, which is stiff, and the movements incoördinate.

Case XXXIX.—C. M., æt. three years and three months. I. P_3, 237. Mumps two years ago; has had spasms ever since. One week before Christmas had a hard spasm, which was followed by right hemiplegia. Unconscious for six hours after attack. Could not walk for two or three days. Has not had spasms since. Leg and arm have improved. Rigidity of arm increased by passive motion. Can extend and flex arm; can extend but not flex fingers. Walks lame on account of contraction of extensors.

Case LXVIII.—John F., æt. seven years. I. P. b., 183. Mother died suddenly; six brothers and sisters, all healthy. Commenced having fits at three years. Has convulsions every six or seven weeks. When six, had a very severe fit, lasting two or three hours. Worked all the time. Fit lasted until 12 P.M. Awakened with a "screech." Lost hearing and speech. For ten days he moved his whole body. Had convulsive movements and contractions. When he began to improve, noticed he could not move right hand. Health excellent. Mind much impaired. Does not move right arm. Nutrition

[1] Spinale Kinderlähmung, 1860. Zweite Auflage.

[2] De l'epilepsie dans l'Hemiplegie spasmodique infantile. Paris, 1882.

about equal. Right hand colder. Grinds his teeth constantly, night and day. Right arm below elbow smaller than left. Muscles of right arm contracted, will yield, but immediately return. Plays, amuses himself. Takes no notice of others. Right leg a very little shorter than left. Right foot much colder than left, but muscles firm. Tendency to varus in right foot.

Case LX.—S. S., æt. twelve years. C. D. C., 57. Family history good. Healthy and strong until sixth year; intelligence very good. Six years ago mother noticed a twitching of left side of face, lasting not more than one minute, and only once a day. Had had no fall, no sickness of any kind. Soon the attacks of twitching of face became more frequent, two or three daily. Head always drooped to left side, and he seemed unconscious, but immediately afterward returned to play. More frequently attacks of twitching of face at night. Two years after first attack of twitching of face, had a general convulsion of left side; was lying asleep at the time, and attack lasted only a few minutes; did not wake up. Next morning early, while asleep, had another attack, which lasted one hour; got up immediately afterward, and seemed as well as ever. This attack was confined to left side; was paralyzed completely for one month after this; loss of speech. Paralysis suddenly left, and power to speak returned. The convulsive attacks have continued at the rate of from one to twenty per diem, and always during sleep, never when awake, generally at night, but, if asleep during the day, may have an attack. Face flushed during attack, afterward pale. Never bites tongue nor foams at mouth. These attacks continued to increase until two years ago. At this time began to lose power in arm; weakness extended to legs and, finally, could not move head, and lost power of speech. No palsy of bladder or rectum. No loss of sensation or hearing. In one year power began to return in hand, and gradually returned to legs and head. Still speaks very indistinctly. *Present state:* No paralysis of arms or legs. Speaks very indistinctly; mother only can understand him. Mind greatly weakened; and is irritable. Fits occur every night; generally has one to three nightly, and if bromide is neglected, will have a greater number. Always voids urine during a fit. Fits last two minutes, and confined to left side.

Case XCII.—Della W., æt. two years. C. D.$_2$, 950. Convulsions began two hours after birth, and have continued ever since. These are of long duration, and affect the right side more than the left. Six months ago, after a severe fit, she lost power on the right side, and it persists, but is now partial. There are constant choreic movements in the right hand.

These cases are of interest, as confirming Goodhart's[1] view that the convulsions may cause the hemorrhage, which leaves permanent damage to the brain.

In the following case the hemiplegia came on after violent *vomiting*, caused by eating pokeroot.

Case LXIII.—Wm. R., æt. thirteen. I. P.$_3$, 31. Was well until fifth year; at that time ate some pokeroot, which made him violently sick at stomach; the attack lasted all day. After vomiting, fell into a profound stupor—was thought to be dead. When he awoke had complete left hemiplegia, entire loss of power, face as well as limbs. Could not move for three or four months. Recovered slowly, leg first, then arm. *Status præsens:* Muscles well developed. Has every motion of left arm and forearm. Can flex hand, but not well, every effort to flex produces more or less extension. Has also lock-spasm of hand; fingers press tightly in palm; extends them by producing extreme flexion of wrist by other hand, which produces reversed condition, and enables him, with aid of other hand, to unlock the fingers. There is choreic movement of hand resembling athetosis. Sometimes hand will not close. All muscles of left arm and shoulder are in constant motion. Muscles well, indeed, overdeveloped. When asleep, spasm subsides completely. Drags leg, but there are no spasmodic movements.

We should naturally think that *embolic processes* had much to do with the production of hemiplegia in children, but neither in the literature nor in our records is there support for this view. In the great majority of the cases the lesion supervenes before the onset of those affections with which endocarditis is associated. Of Wallenberg's cases, only five had endocarditis and embolism. A case reported by Taylor,[1] illustrates this condition very well: A child aged, five years, with scarlet fever, had convulsions on the fourteenth day, after which a right-sided paralysis remained. There was also partial gangrene of the hand, and dropsy of extremities. The autopsy showed embolic softening in left hemisphere, infarct in kidney and recent mitral endocarditis. Here the connection is very evident, and it is surprising not to find a larger number of cases of this kind. The only instance of embolism on our records is of a similar nature, and is given among the scarlet fever cases. The girl, æt. fifteen years at the time, had dropsy after the fever, and was ordered a hot bath, in which she was suddenly seized with right hemiplegia and aphasia. That this was embolic is likely from the sudden onset, and from the presence, eighteen months afterward, of a well-marked apex systolic murmur, the result, no doubt, of an endocarditis at the time of the scarlet fever.

In speaking of the morbid anatomy, we shall refer to the fifteen cases, of the ninety autopsies collected in the literature, in which there was vascular obstruction; seven of them were embolic.

[1] Text-book of Diseases of Children. Philadelphia, 1887.

ORIGINAL ARTICLES.

AURAL VERTIGO.[2]

BY CHARLES H. BURNETT, M.D.,
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AURAL vertigo differs from other forms of vertigo in owing many or all of its phenomena to disease of the ear. This latter lesion may be either entirely causative, or it may be only promotive of the vertigo. This disease has many forms, since the aural irritation may lie in the external, the middle or the internal ear. The entire train of phenomena, regardless of the seat of primal irritation, has been called Ménière's disease. But as both Flourens and Deleau, many years before Ménière, described this peculiar aural disease, the affection might be termed, with

[1] British Med. Journal, 1880, ii.

[2] Read before the Medical Society of the State of Pennsylvania, June 7, 1888.

or Deleau's disease. A fairer and more scientific nomenclature, however, is Aural Vertigo. The apparently same ear-disease does not always produce identical symptoms of vertigo. Sometimes no symptoms of vertigo are produced by the same form of aural disease which in other subjects evokes vertiginous symptoms. The neuropathic diathesis is well marked in most cases of aural vertigo, and hence we conclude that a neuropathic subject, with an aural lesion, is most likely to become vertiginous, and to suffer from aural vertigo. In any case, the neurotic, or neurasthenic, subject is more likely to become vertiginous from any cause, and very easily from irritation in the auditory apparatus.

Aural irritation is competent to produce vertiginous symptoms because of the peculiar nature of the semicircular canals in the labyrinth. These canals owe their peculiar relation to equilibration to the fact that the auditory nerve contains motor fibres, which chiefly pass to the peduncles of the cerebellum, and to the spinal cord. But some of these motor fibres of the auditory nerve pass to the ampullæ in the semicircular canals, thus instituting an auditomotor connection between the internal ear, the cerebellum and the spinal cord. Without attempting to locate in the semicircular canals a vertiginous centre (as some would), it is an admitted fact that irritation of these organs and of the inferior peduncles of the cerebellum produce identical phenomena of vertigo, reeling, nausea, vomiting, etc. This irritation may arise in different ways, and be communicated by various routes to the brain.

In the earliest cases of aural vertigo ever described, the irritation was not only supposed to spend itself upon the internal ear—*i. e.*, on the semicircular canals—but was supposed to be of an apoplectiform kind, and to arise in the internal ear.

It is a fact that post-mortem examination in some cases of ear vertigo reported by Ménière, and also by Moos and others, revealed in the labyrinth and semicircular canals serous and sanguineous effusion, with more or less destruction of the soft tissues of the internal ear, thus establishing an apoplectiform form of aural vertigo.

Similar phenomena of aural vertigo have been observed, and their pathological genesis established by post-mortem examination in tumor of the auditory nerve (Morris Longstreth and C. H. Burnett). Many cases of aural vertigo, however, are *mechanical* in their origin, and are extralabyrinthine.

Thus, in inflammation in the middle ear accompanied by swelling and extravasation of serum, blood, mucus or pus, great pressure is exercised upon the stapes, in the oval window, and upon the membrane of the round window, both of which communicate with the labyrinth fluid. By this means it is easily seen how increased pressure may be exercised upon the labyrinth fluid and the nerves in the semicircular canals, by pressure upon the two windows named.

Another way in which pressure is exerted is by retraction of the chain of ossicles, carrying inward the foot-plate of the stapes, and pressing upon the labyrinth water. When the air of the drum cavity is absorbed, as it is very quickly if the Eustachian tube is closed by inflammatory swelling, or if the drum cavity is invaded by extravasation, the membrana equal justice (perhaps with more), either Flourens's tympani is pushed inward by the external atmosphere.

Mechanism of aural vertigo explained on a physical model of the middle ear. Thus the chain of ossicles is carried inward and the labyrinth water compromised, especially if the normal compensatory yielding of the membrane of the round window is diminished or stopped by swelling of the mucous membrane over its tympanic surface. Such is the mechanism of aural vertigo in both acute and chronic inflammation in the drum cavity.

The latter conditions are fully explained by some recent post-mortem examinations of Gellé, of Paris.

These examinations of the middle and internal ears, in some cases of undoubted aural vertigo, have shown that either the foot-plate of the stapes had been ankylosed in the *oval* window, or that dense fibrous or osseous closure (ankylosis) had taken place in the round window and its membrane. If either of these conditions occurs, the compensatory yielding of (let us say) the membrane of the round window to pressure exerted by the foot-plate of the stapes upon the lymph and the labyrinth is stopped. The result is, that a very little pressure upon the foot-plate of the stapes exerts unusual force upon the terminal nerve filaments in the semicircular canals, and vertigo ensues. Similar forces act and resultant phenomena occur, if the stapes is ankylosed in the oval window, and sound waves or other forces act upon the membrane in the *round* window (membrana tympani secundaria).

The mechanism of aural vertigo is similar in cases in which the irritation—*i. e.*, pressure inward of the membrana tympani, has its origin in the external ear. This is seen in the vertigo produced by a foreign body, or by any force which presses the drum membrane inward. This, in turn, carries the malleus and the entire chain of bones inward. The stapes is forced unduly inward, and the fluid—the so-called peri- and endo-lymph, in the labyrinth is compressed, the nerves in the semicircular canals receive an undue shock, and vertigo is the result.

In the more acute forms of aural vertigo, the patient is conscious of some irritation in his ear, but neither he nor his physician is very likely to connect the vertigo with aural disease. In the more chronic forms of aural vertigo, some cause, other than the aural lesion, is usually blamed for the vertigo and other cognate symptoms.

If the vertigo and nausea are the chief symptoms, the patient is supposed to be bilious. If to these symptoms, reeling and falling, with or without syncope, are added, the victim is said to be epileptic or apoplectic. In some cases, in which the irritation is from a foreign body in the external ear, the patient may have symptoms of paresis in the arm or leg on the same side.

In many instances of ear-vertigo from tympanic disease, the symptoms are only a slight dizziness and nausea, coming on suddenly after eating, or with a cold in the head. These are most likely to be considered gastric in their origin, or "bilious." Yet vomiting does not always relieve, nor yet treatment for the supposed "biliousness." In the worst forms of aural vertigo, originating in chronic disease of the middle ear, the symptoms are most distressing. The nausea and dizziness may come on suddenly, being generally preceded by tinnitus aurium These symptoms often continue for hours or even days, the patient becomes extremely pallid, the forehead, and in fact the entire body, may be bathed in cold perspiration, the hands even get cold and clammy, and the patient presents the appearance of one in collapse. The mind, however, remains entirely clear, and there is nothing resembling either tonic or clonic spasms. The absence of these, together with the pallor and unobstructed intellect, serve to distinguish such attacks from apoplexy, or epilepsy.

Of course, when the dizziness and nausea are intense, the patient cannot walk, and syncope may supervene from the intense nausea. Nevertheless the pallor will aid in distinguishing aural vertigo from apoplexy. But syncope in aural vertigo is one of the rarest symptoms.

In the so-called apoplectiform cases, in which sanguineous or serous effusion into the labyrinth is supposed to occur, the profound and sudden deafness, the great tinnitus aurium and the vertigo, consciousness being maintained, serve to diagnosticate aural vertigo from apoplexy.

In these cases, the vertigo generally appears in paroxysms, apparently dependent upon variations in health or upon fatigue. In these forms, it will be often found that the subject has been overworked, either as a business or professional man. The deafness is usually permanent and the tinnitus aurium long continued.

In aural vertigo dependent upon a central lesion, like tumor of the auditory nerve, the vertigo and altered gait are constant, and the deafness increasing and profound.

Treatment.—In external-ear-vertigo, when the irritation arises from a foreign substance in the ear, the treatment consists in the removal of the foreign substance. This is most safely and conveniently done by syringing the ear. If the foreign substance has wounded the skin of the auditory canal or the membrana tympani, such lesions must be treated. If the foreign body is an animate one, like an insect, smothering the creature with oil, as soon as possible after its entrance into the ear, will allay the vertigo. The dead insect can then be removed at leisure.

If the irritation productive of aural vertigo is in the middle ear, the treatment must be directed to the cure of the acute or chronic inflammation of the drum cavity, and its causes.

In acute otitis media, the removal of the products of inflammation may be accomplished either by inflation of the tympanum through the Eustachian tube, or by paracentesis of the membrana and letting out the mucus or pus. At the same time, the nares, from which the inflammation has probably started, must also receive attention. In the chronic form of otitis media catarrhalis, the treatment of the nares must be a prolonged one, in order to relieve the narrowing or swelling of the Eustachian tube, which, having cut off the usual air-supply to the drum, has led to a vacuum in the drum-cavity, to retraction of the membrana and the ossicles, inward pressure of the stapes and pressure on the labyrinth water, thus evoking aural vertigo.

In chronic cases like that just described, the equilibrium of the air-pressure on both sides of the membrana and the restoration of the vibratility of the chain of ossicles, with consequent relief to labyrinth pressure, may be brought about by perforation of the membrana tympani. This may be done with a small paracentesis knife; but the relief is of short duration, because the knife-wound heals very soon. A more lasting opening may be made with sulphuric acid.

Previous to this latter operation, partial local anæsthesia may be obtained by instilling a ten per cent. to twenty per cent. solution of cocaine into the ear and allowing it to rest a few minutes in the fundus of the canal and on the membrana tympani. Then, under good illumination of the fundus and the membrana, either by the light reflected from a forehead-mirror or from the electric lamp arranged for the forehead, press a cotton-holder armed with a small dossil of cotton, one to two millimetres (a half to a line) in diameter, moistened with sulphuric acid, against the lower posterior quadrant of the membrana tympani.

This operation causes sharp pain for a few moments, but this is always checked by the instillation of more cocaine. The hearing is usually improved, and the attacks of vertigo much less frequent and severe after the perforation in the membrana is established. Perforations thus made endure for months, and in the meantime the vertigo is relieved or cured.

A more permanent opening in the membrana—*i. e.*, into the drum-cavity—is maintained by excision of the membrana and the two larger ossicles, the

malleus and the incus. This operation relieves the retraction of the chain of bonelets and permits the stapes to have more freedom of motion in the oval window. This can be performed only when the patient is under the effect of an anæsthetic. Then, in order to bring a light with safety near the patient, for illuminating the ear, the electric light as arranged by Dr. S. Sexton, of New York, must be used (portable storage battery and lamp for forehead shown).

The first step in this operation is to excise the posterior upper quadrant of the membrana tympani with a small knife. This is done in order to reveal the incudo-stapedial joint and to permit a separation of the incus from the stapes. The latter must be left intact; the former may be removed or simply allowed to remain turned upward into the attic. The next step should be tenotomy of the tensor tympani, best accomplished by a special form of knife. This done, the membrana tympani is cut around the periphery and the suspensory ligaments of the malleus severed, and the latter bone removed by gentle traction with forceps. The hemorrhage is very slight, and there is usually no inflammatory reaction after this operation. As the hearing is often improved by this operation, and the tinnitus aurium lessened or entirely cured, it has seemed to me fair to assume that aural vertigo in chronic aural catarrh, with profound deafness, which has failed to yield to treatment applied to the naso-pharynx, might be relieved by the operation I have just described. Hence I have performed it for the relief of aural vertigo, with entire success, in a case of this nature. From all of which we may conclude that aural vertigo is very often due to mechanical interference in the sound conductors of the middle ear, relievable by an operation which overcomes this disturbed mechanism in the middle ear and relieves the labyrinth and the semicircular canals from the undue inward pressure of the chain of ossicles, especially the stapes, upon the labyrinth fluid.

A NEW FORM OF ABDOMINAL ELECTRODE.

By ELY VAN DE WARKER, M.D.,
of Syracuse, New York.

The present of a book-weight composed of two narrow rows of quilted cloth filled with shot, making a long, flexible weight that would reach across the open pages of a book, furnished the idea of the shot abdominal electrode as I have made and used it.

It may be briefly described as follows: A circular disk of zinc, to which is connected the binding-post, has attached to its periphery, by solder, half a dozen fine copper wires eight inches long, or of sufficient length to reach across the electrode, which are loosely tacked, as the needle-women call it, to a piece of thick, firm chamois skin, cut the shape and size of the intended electrode. Upon this is laid another piece of chamois of the same size, and the two are then quilted together in rows parallel to each other, and about two-thirds of an inch apart. The spaces made by the rows of quilting are then filled with fine shot; I used No. 7. A thin vulcanized plate, the same size as the zinc disk, is interposed between the chamois and the zinc, on what we will call the contact side of the electrode, so that the current will be diffused through the latter and not directly from the zinc, as electricity always takes the shortest route. For the same reason, the copper wires should be tacked to the upper and not the contact side of the electrode, as there is just enough difference in conductivity between the copper of the wire and the lead of the shot to diffuse the current, the copper having a specific resistance of 112, and the lead of 1213 (Deschanel). This difference in specific resistance is the theory upon which I relied to distribute the current evenly through the electrode, and the result in practice showed that it was correct; but it is evident that if the copper wires had nothing but the wet chamois interposed between them and the skin of the patient, the latter would receive the electricity in streaks corresponding to the distribution of the wires, which would be very clearly mapped out in vivid colors when the *seance* was over.

The electrode is prepared by immersing in water until it is saturated, and thus the chamois, which is a non-conductor in the dry state, becomes as perfect a conductor as water can make it. While we have a pad of very low power of internal resistance, yet the resistance is not represented by the elements of which it is composed, but by the water with which it is saturated. This is true of all large electrodes that are designed to be neutral in the employment of a current of any considerable voltage. The merit of the shot electrode lies in matters entirely outside of purely electrical considerations, and is mechanical, or, it is better to say, operative.

The comfort of the patient, the steadiness of the current, the safety of the surface and the after-results depend not upon the material of which the electrode is composed, because water is the agent that acts as the conducting element between the material of the electrode and the surface in all non-effective large electrodes of this class, but upon the firmness and uniformity of the contact between the electrode and the exposed surface of the patient. I have used several of them, and find that in this respect there is a serious defect in all. One of the best is the clay electrode of Apostoli, which is made up of non-conducting material and depends upon water as the conducting agent entirely; but unless the clay is made very wet it requires great battery strength to overcome the internal resistance offered by the material, and through the respiratory movements of the abdomen, the movements of the patient,

or reflex jerk, the intimacy of contact and the uniformity of pressure are being continually changed; in other words, a make and break in the continuity of the current is continually going on in small areas throughout the surface of the electrode, which accounts for the blotched appearance of the surface when the clay is removed after a *seance*. This can only be prevented by making the clay thoroughly wet. In addition to this the electrode of Apostoli is troublesome and filthy. Large zinc plates covered with absorbent cotton and saturated in a solution of sodium chloride, or covered with soft towelling wet in the same solution, are still more difficult to keep in uniform contact with the exposed surface of the patient. The milliampèremeter instantly shows the variations in contact. If the electrode is held in position by the assistant and the pressure of her hand is relaxed, the instrument will at once register a smaller number of milliampères, but without any indication that the current is broken. When the pressure is restored, the former amount of current is again indicated. The water electrode that some one has invented is simply a great fluid rheostat that modifies the current and requires considerable battery effectiveness to overcome.

The shot electrode that I have made weighs nearly four pounds, and by its flexibility and weight preserves a constant degree of contact and pressure. It adjusts itself to the respiratory movements of the abdomen, coughing or involuntary muscular contractions, without in any way interfering with the uniformity of contact or pressure. The new electrode has given me considerable satisfaction, and I contribute this in the hope that others may be induced to give it a trial. My instrument was home-made, and is more useful than ornamental. Messrs. Waite & Bartlett, of 143 East 23d Street, New York City, are prepared to make the electrode in more durable and workmanlike form.

THE RATIONAL TREATMENT OF STRICTURES OF THE MALE URETHRA.[1]

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ANATOMISTS and surgeons, when writing of the male urethra, divide it into portions, called prostatic, membranous, bulbous and penile. While these divisions are quite proper in a certain sense and greatly facilitate description, they are, nevertheless, often misleading, and one is very likely to associate in his mind an essential difference in the construction of the variously named portions of this tube, and these false notions interfere with all subsequent attempts at a clear conception of the causation and proper treatment of strictures of its calibre.

The truth is, the urethral canal is of identical construction throughout its entire length, and the terms prostatic, membranous and bulbous portions have no relation to the tube *per se*, but describe the tissues by which it is surrounded at various points in its course. Picture to your mind an India-rubber tube of uniform construction and nearly equal calibre, leading across country, through which water is to be occasionally pumped; at one point it curves upward to pass over high ground, where it is firmly imbedded and closely surrounded by the earth; at another it dips downward to span a hollow, where there is almost no support around it; again, a boulder supports its under surface, and so on, and you have an excellent sketch of the male urethra. A microscopical section from any portion of the urethra shows the walls to be constructed of elastic and non-elastic fibres running in different directions, and all thoroughly interlacing with each other, and the mucous membrane which lines the canal is paved with many layers of epithelium; in short, nature seems to have exhausted herself in providing that this canal shall be effectually protected against leakage of the urine into the surrounding tissues while passing from the bladder.

We know that it is nature's rule, in so far as she is able, to repair every injury to the organism, whether made by disease, accident or the surgeon's knife. But, unaided, she frequently fails to attain the end for which she strives, while, at other times, in the very act of repairing a breach, she brings about another and more serious pathological condition than the one which she sought to relieve. With the superior intelligence of man over nature, it is our business as surgeons to study nature's methods, and, by aiding and directing them, to bring about the restoration of the part, which, left to herself, she could not have accomplished. Nature's laws and methods never change; the means she would have employed to repair the injuries inflicted by Cain upon Abel are the same which she adopts in a similar case to-day. It follows, then, that every *real* improvement in our art must be based upon the discovery of a new law in nature's code, or upon a more perfect understanding of one already known. Take as an illustration, antiseptic surgery. What is it? Only a strict obedience to one of nature's laws which we have thoroughly learned, viz., that certain secretions, notably the urine, and the products of inflammation shall not remain in contact with unprotected living tissue.

Innovations or new methods of treatment, based upon any other principle than this, are mere experiments, or, what is infinitely worse, are the dictates of fashion, which is unfortunately too common in the practice of surgery.

[1] Read before the Clinical Society of the New York Post-Graduate Medical School and Hospital, April 7, 1888.

Strictures of the urethra are never directly caused by disease or injury, but are the result of the protective and reparative methods which nature adopts to preserve the integrity of the walls of the canal when they are attacked by ulceration or injury from within the tube.

The ulcerative action of the virus of gonorrhœa upon the inside urethral wall is the most common cause which excites this protective inflammation on its outside: but it ought not to be forgotten that every traumatism to the mucous lining of the urethra, whether made by accident or by the surgeon's instruments, if at all serious, will certainly be followed by plastic inflammation and a deposit of organizable lymph opposite the point of injury on the outside of the tube, and between it and the surrounding tissue; this lymph soon becomes organized into connective tissue, strengthens the wall at the desired point and secures its integrity until the inflammation, ulceration or effects of the traumatism within the tube have passed away.

In obedience to another law of nature governing connective tissue, it slowly contracts, and, as it does so, it presses the urethral walls together, and consequently impinges upon the calibre of the tube, and thus a stricture is formed.

The tightness of a stricture depends upon the *amount* of connective tissue thrown out at that point. In the penile portion, where we would expect the virus of gonorrhœa to be the most active, we rarely have tight strictures; the reason is, that in this portion the corpus spongiosum envelops the urethral tube so snugly that only a small amount of connective tissue can be placed between it and the surrounding structures at any one point. The bulbous and membranous portions are the points where the tightest strictures occur; the reason is that around these portions the tissues are very lax; here the urethral tube spans a hollow, as it were, and receives almost no support from the adjacent tissues, and thus abundant space is left around it for the deposit of a large quantity of plastic lymph.

The bulbous and membranous portions are not only the seat of the tightest strictures, but these portions are most *frequently* attacked by them.

The reason for this greater frequency is, because the urethra being most dependent in these portions, the gonorrhœal poison naturally gravitates to, and remains in them; injections into the canal for the cure of gonorrhœa also doubtless assist in driving the virus to these portions.

Stricture, perhaps, never occurs in the prostatic portion of the urethra. The reason is, that the tube curves sharply upward from the membranous through the prostatic portion into the bladder, and there is nothing to force the virus up this acclivity once it is lodged in the membranous portion, and if it should reach the prostatic portion and set up an ulcerative inflammation, the stricture resulting would be only a slight one, for the firm tissue of the prostate gland surrounds the tube so tightly, that only a very slight amount of cicatricial tissue could be deposited between them.

We come now to the treatment of strictures of the urethra. And still keeping Nature's laws in view, let us endeavor to find out what, from her standpoint, are the rational means by which we can both relieve these constrictions and remove or render impotent the cicatricial tissue which has caused them.

From what we have already noted of the peculiarities of strictures in the different portions of the urethra, the subject of their treatment seems naturally to divide itself into two heads, viz., stricture in the penile portion and stricture in the membranous and bulbous portions.

We will first consider the treatment of strictures in the penile portion. We have seen that strictures occur with less frequency in the penile portion, and that they are also rarely so tight as when situated in the deeper portions; we have also seen the reasons for these differences. The methods of treatment generally adopted for relieving these strictures are two; gradual dilatation and pressure by the introduction of steel sounds of increasing size, and by internal urethrotomy.

From the standpoint of antisepsis, the operation of internal urethrotomy is a most glaring inconsistency, and a violation of the known laws of nature, as applied to this part of the organism.

You cannot cut a stricture internally, without at the same time cutting some of the sound tissue in its neighborhood; and, indeed, the advocates of the operation advise that the cut shall extend into the sound urethra behind and in front of the constriction. The amount of it is, in this operation, an incised wound is made through the urethral wall and into tissue eminently adapted for the absorption of any deleterious matter which may come into contact with the wound. It is a wound to which air may find access, one through which instruments are to be passed, which, in spite of our best care, may deposit in it septic matter. It is a wound certain to be constantly bathed with urine, a wound which you cannot see, explore, drain, cleanse or disinfect.

Should the patient escape these dangers of infection, the worst is to follow, for after this traumatism, nature adopts her old method of preserving the integrity of the urethra, and deposits more lymph at the seat of the stricture and in the adjoining healthy tissue, which in time organizes and contracts; and not the old stricture, but a tighter one is formed, and the last state of that urethra is worse than the first.

My own clinical experience of more than ten

years, and the still greater experience of others, which I could detail, had I the time, amply prove the truth of what I have said. Everything said of internal urethrotomy applies equally to divulsion, rapid dilatation or any plan which contemplates a traumatism to the urethral wall.

The so-called gradual dilatation treatment is a misnomer as applied to strictures of the penile portion. It conveys only the idea of stretching, while the most important element in it is the pressure it exerts on the connective tissue surrounding the tube. One of the simplest and best known laws of nature is that pressure on a part causes its absorption. We, therefore, take advantage of this law, and of the fact that the tissues around the penile portion of the tube are comparatively firm, and offer a certain amount of counter-pressure. It is my rule, also, to aid this counter-pressure by allowing each instrument to remain in the urethra for five minutes or more, and during this time to make gentle but firm pressure over the seat of the stricture by squeezing the penis at this point between the thumb and finger, carrying the manipulation all around the organ. In cases in which the deposit of cicatricial tissue was so large that it could be felt as a small hard tumor around the point of stricture, I have been able to note its gradual disappearance from day to day under this treatment. After much experience with this method, I have yet to see a stricture of the penile portion which failed to yield to it, and when dissipated in this way the stricture has not returned in two, three and five years after all treatment was discontinued, as is proven by some of my own cases. This I hold to be the only rational and successful treatment of strictures in the penile portion.

Next comes the treatment of stricture of the deep urethra. The dangers and unnaturalness of internal urethrotomy and allied operations, as we have shown them to exist when the operation is performed in the penile urethra, are doubled if performed in the deeper portions; and with this remark, I dispose of the subject of internal cutting in the deep urethra.

Gradual dilatation and pressure, which we have seen to be so successful in the penile portion, will cure only a limited number of strictures when they are situated in the bulbous and membranous portions. The reasons for the failure are, because, as we have seen, strictures in these portions are, as a rule, very tight, the open space around the tube here allowing of a large deposit of connective tissue; and, furthermore, this same laxity of the surrounding tissues prevents us from getting the counter-pressure, when solid sounds are passed, which the more compact tissues around the penile portion offers, and the location of the tube here also prevents us from making counter-pressure by proper manipulation which we found so useful in the penile portion.

Except, therefore, in cases in which the stricture is of recent formation, with only a small amount of cicatricial tissue opposite the point, gradual dilatation and pressure will prove, at best, only palliative in strictures of the deep urethra.

Perineal section, or external urethrotomy, is an operation almost entirely void of danger, and, when properly performed, it may always be depended upon permanently to cure strictures in the membranous and bulbous portions of the urethra. It has been so successful in my hands that I have come to feel justified in promising my patients a permanent cure in ten to fourteen days from the date of the operation.

External urethrotomy is free from the dangers and inconsistencies of the internal operation. Its proper performance contemplates and accomplishes the most simple and rational means of relief, which is to incise externally the urethral wall at the point of constriction, and introduce into the incision a wedge of sound tissue sufficiently large to restore the tube to its normal calibre. It is not difficult to accomplish this; my rule is to cut in the centre of the perineum, reach the stricture, freely incise it, cutting into the sound tissues on both sides for a quarter or half an inch; then pass from the meatus to the bladder a hard-rubber catheter of the size of the normal urethra, and tie it in position. This causes a gaping of the walls of the incision, and prevents their primary union, and the extent of this gaping is the correct measure of the wedge of sound tissue which is to be introduced into the circumference of the tube; this wedge is secured by the final union of the granulations, which by thus keeping the walls apart are made to spring up on the two walls of the incision. After thirty-six hours the catheter is removed and the urine allowed to drain from the bladder through the wound, and this, together with the daily passage of a sound of the size of the normal urethra, is sufficient to insure the formation of a proper sized wedge of granulation tissue. Strict asepsis is, of course, observed throughout the operation.

LACERATION OF STENO'S DUCT, FOLLOWED BY INACTIVITY OF THE CORRESPONDING PAROTID GLAND.

By HANS H. SINNÉ, M.D.,
of Trenton, N. J.

Injuries to the parotid gland and its duct are almost invariably followed by disfiguring fistulæ, not to mention more disastrous results. The following case, for singularity of its development and final results, stands probably unique.

On Thursday, April 19th, I was summoned in haste to see Otto F., æt. seven, who, while playing with some comrades, had been thrown upon the ground by a dog, and severely bitten in the cheek.

The tear began at the angle of the mouth, through the more superficial fibres of the sphincter oris, ran thence upward for about an inch in the direction of Steno's duct, and from there in two distinct lines, the lower following the salivary duct to near the lobe of the ear, the other perpendicularly upward to the lower margin of the eye. The intervening tissue of a quarter of an inch in thickness had been torn from the underlying structures, so as to present the form of a flap. Further inspection, upon lifting this flap, revealed the parotid gland uninjured, but Steno's duct was torn at a point very near to the body of the gland. The remnant of this canal, of about one and a quarter inches in length, was found curled up near the angle of the mouth; the intervening piece was missing. The buccal cavity had not been entered.

The wound was washed with warm water to promote bleeding, though nearly an hour had elapsed since the injury was received. This fact and the form of the injury caused me to omit cauterization.

As the remainder of the salivary duct would have been of very little if any use, and lest it might interfere with proper union of the parts, it was removed. The child was put under chloroform, the parts were carefully washed with a warm solution of bichloride, then nicely adjusted and stitched into position. In order to drain any saliva secreted by the parotid gland, several silk threads were put underneath the flap up to the body of the gland. The wound was dressed with iodoform, bichloride gauze, and pressure was exerted upon the gland and flap by a graduated compress, confined *in situ* by an appropriate bandage.

Owing probably to shock and the anæsthetic, there was no secretion of saliva on the injured side for two days. On the third day the secretion of saliva was found resumed, the wound red and angry, several stitches torn out—though due allowance had been made for ensuing tension—and the flow of secretion gravitating toward the lower margin of the wound, and separating its edges, without following the course of the drainage-threads. The exerted pressure had evidently not been sufficient to keep the flow of saliva in the line indicated by the silk drainage.

New drainage-threads were introduced, and, in order to increase the pressure upon the gland and flap from below upward, a broad cork of half an inch in thickness, cut to fit the prominence of the zygomatic arch, and well padded by lint and gauze, was confined underneath the reapplied roller. The cork and bandage were readjusted every day, with the ultimate result that the salivary secretion became greatly diminished, and its flow directed in the course provided for its drainage.

On April 28th the flow of saliva ceased completely. The neighboring submaxillary and sublingual glands and the parotid of the opposite left side showed for a day or two distinct sympathetic disturbance, marked by swelling and pain on pressure. Pressure upon the parts was nevertheless continued.

On May 2d I presented the case to the Mercer County Medical Society, at Trenton, N. J. As there was then no further secretion of saliva, and no serum was visible, and the margins of the wound had become firmly united, pressure by the cork and bandage was discontinued, and, after removal of the now superfluous silk drainage, the wound was dressed with subiodide of bismuth collodion. There has since been no disturbance of any kind, and the wound is completely healed. The boy is still under my surveillance, to guard against accidents.

The dog has unfortunately been shot, against my advice, as I desired to see if any signs of rabies should develop themselves. The animal, though somewhat ferocious, was probably not rabid at the time of the injury.

As there is at present not a sign of either fistula or abscess—complications which I most certainly anticipated—I can but conclude that the parotid gland, owing to the continued pressure, became hermetically sealed by the union of the flap to the underlying part, and ceased activity, in time probably undergoing atrophy because of non-use.

The patient does not complain of pain or other ailment, and is to all appearances perfectly well. The case in question certainly compels us to conclude that it is best to postpone surgical interference in all similar cases *ad ultimum*.

145 BUTLER ST., May 7, 1888.

MEDICAL PROGRESS.

The Diagnosis of Syringomyelia.—At a meeting of the Verein Deutscher Aertzte in Prague, held January 13, 1888, PROF. KOHLER made some remarks on the diagnosis of syringomyelia.

The patient exhibited showed, besides progressive muscular atrophy of both upper extremities, in course of development for three years, an affection of the skin, limited to the region of the shoulder and arm, consisting in numerous circumscribed spots of necrosis, with succeeding ulceration and keloid cicatrization. Besides, there exist defects of the temperature sense in both hands and on the left forearm; and upon both sides, the oculo-pupillary symptoms of paralysis of the cervical sympathetic.

The preceding complexus of symptoms may depend upon two conditions, that of the formation of a cavity dependent upon dilatation of the central canal, and that of central glioma of the spinal marrow, the latter with or without the formation of a cavity and fissure.

Both the processes mentioned, at the time, were not susceptible of differential diagnosis. The central seat of the changes, and the preference with which the cervical cord is first attacked, are common to both. He made a searching analysis of the complexus of symptoms hitherto observed in the cases of syringomyelia referred to, and gives prominence to the following signs, as of diagnostic significance by reason of their peculiarity, or of their association: the progressive muscular atrophy, peculiar disturbances of sensibility, particularly analgesia and defects of the temperature sense, finally trophic disturbances of the skin and deeper parts. The last may appear as paronychia, leading to the loss or deformity of individual phalanges of the fingers, or as a deep-seated phlegmonous inflammation. Or they may show them-

selves, as in the patient presented, upon the skin in the form of vesicles, which appear filled with serous or purulent contents, and change to protractedly suppurating ulcers, on which an indurated cicatrix is frequently to be observed. Or, finally, there occur in the cases of such patients, spontaneous, or rather, upon slight cause, fractures—the so-called spontaneous fractures. It is worthy of notice that any of the manifestations of the disease may appear as the first symptom, and for a time may exist alone. In the progress of the case, regular combinations of various kinds occur, and, finally, depending upon the extension of the process in the soft substance of the spinal marrow, spastic paresis and paraplegia of the lower extremities associate themselves. The oculo-pupillary symptoms are also dependent upon the disorder of the cervical muscles, and may be of diagnostic importance in a given case.

Prof. Chiari spoke of the pathological anatomy of syringomyelia, a name at the present time generally appled to every protracted cavity formation in the spinal marrow in adults. Surely the individual cases, as a careful analysis of respective reports shows, are generically widely different, as cavity formations in the spinal marrow in adults may result from gliomatous degeneration, from the persistence and progressive development of congenital anomalies of the central canal, from circulatory disturbances in the spinal cord, from myelitic softening and also, as Chiari, in a recent case, had the opportunity of confirming, from hyperplasia of the central connective tissue, with transudation into the previously normal central canal. Chiari, therefore, suggested that all cavities in the spinal cord associated with the central canal, be called hydromyelia, and that the termination "syringomyelia" be reserved for those not so associated.—*Deutsche med. Wochenschrift*, May 24, 1888.

A Case of Subcranial Hemorrhage treated by Secondary Trephining.—W. Thornley Stoker, in the *Annals of Surgery* for June, 1888, reports the case of a laborer, aged fifty, who had been rendered insensible by a fall from a cart. There was more or less complete left-sided paralysis, but no disturbance of sensation. The pupils were but slightly affected, the breathing was slow and stertorous, and the temperature and pulse above the normal. A bruise was found on the right side of the cranium, about one inch from the middle line, on that part of the scalp corresponding to the upper part of the fissure of Rolando. On the ninth day after the accident a trephine was applied, with antiseptic precautions, and a well-formed blood-clot between the bone and dura mater removed. Signs of returning brain power at once showed themselves, and the patient made an uninterrupted, good recovery.

The writer comes to the conclusion that in cases of intracranial injury involved in doubt we should operate, so long as evidence of such constitutional disease or local condition as points to apoplexy is absent.

Experimental and Clinical Contributions on the Action of Cocaine.—Rosenthal (*Wiener med. Wochenschrift*, 1888, No. 5) believes that the manifestations of increased arterial tension, and the central or local effect of the anæsthesia produced by cocaine, may be applied to the treatment of some symptoms of nervous disease and other organic affections. The methodical use of the drug in the depressive form of neurasthenia, by increasing the arterial tension, caused amelioration of the nervous symptoms. Increasing doses (⅓–½ gr. twice a day), given for weeks, relieved the abnormal impressibility, as well as the feeling of dread, produced a slight intoxication, cheerfulness and hopefulness, and gave the patient a fresher appearance, fuller pulse, better arterial tension of the radial, greater activity and stimulation of the mental functions.

Its action in some cases of tabes dorsalis was even more marked; the influence upon the frequent lancinating pains was most favorable. If a 3 per cent. solution were injected hypodermatically as soon as the neuralgic paroxysm manifested itself by circumscribed burning of the skin or hyperalgesia, subjective feeling of cold, paleness of surface, as well as weak and small pulse, in ten or fifteen minutes a feeling of bodily warmth returned, the circumscribed hyperæsthesia disappeared, the skin regained its redness and moisture, and the radial pulse became noticeably fuller and tenser, and in a half hour to an hour the patients could leave their beds. Corresponding injections of morphine, napelline and antipyrin failed to afford similar good results. Not only was their calmative influence less speedy than in the case of cocaine, but their use was also attended with a longer, more unpleasant and more general depression. On the other hand, the continued use of cocaine gradually makes more concentrated solutions (up to 5 per cent.) necessary, and frequently gives rise to unpleasant sensations in the stomach, lasting for hours, for which a little cognac was used and seemed effective.

In chronic diseases associated with dropsy, injections of ½ grain diminished the œdema, it is true, only during the time of their use, probably by increasing the intrarenal pressure and the action of the heart.

The anæsthesia of cocaine may be made operative centrally or peripherally. Marked improvement in the boulimia (hyperorexia) dependent upon hyperæsthesia of the gastric vagus centres was noticed from the protracted use of 1/6 to ⅓ grain (twice or three times a day). In various forms of nervous cardialgia good results were noted when cocaine was given at the beginning of the attack, best in a solution of 2 to 3 grains to 5 ounces of water, a teaspoonful every fifteen minutes until the cramps were allayed.

As disease of the vagus nucleus has recently been repeatedly demonstrated in spinal cardialgias, Rosenthal believes that in the gastralgias occurring with severe emotional disturbances, in hysteria and neurasthenia, there is not stimulation of the terminal filaments of the sensory nerves in the stomach, but irritation of the bulbar vagus centres, and, as a result of his experience, recommends cocaine as particularly soothing for the excentric irritation.

In anorexia nervosa, due to a hyperæsthesia of the peripheral gastric nerves, with oppression and pain following every meal, cocaine given in the manner indicated before the meal, ought to repress the unpleasant sensations; just as, according to Weiss of Prague, the vomiting of pregnancy, even in severe forms, may be relieved by the administration of cocaine, 3 grains to 5 ounces of water, a dessertspoonful every half hour.

For the peripheral colicky pains in nervous, anæmic persons and those addicted to the morphine habit, cocaine, given in the manner indicated, does good

service; and in these cases the painful excitation of the special ganglionic apparatus in the wall of the intestine, which controls the intestinal movements, appears to be allayed in a manner similar to that in which the irritated gastric nerves are affected. Finally, the hyperæsthesias of the urethra and neck of the bladder in cases of neurasthenia sexualis, in nervous spermatorrhœa, or in consequence of persistent pollutions or excesses, are favorably influenced by weak, local injections, and allow of the methodical use of the bougie; as well as combination with rational hydraulic treatment, in order to overcome the obstinacy of the disorder. In conclusion, Rosenthal states that the annoying tinnitus aurium from the use of quinine or salicylic acid may be lessened by the addition of a small quantity of cocaine (1/6 gr. to 15 grains). —*Therapeutische Monatshefte*, May, 1888.

For Neuralgia.—Dr. B. W. Richardson recommends (*Asclepiad*, No. 18) the following formula in neuralgia:

R.—Croton chloral	gr. ij.
Quinia	gr. ij.
Glycerin	q. s.

To make a pill; to be taken when the attack threatens, and to be repeated every two hours until relief is obtained.

The Treatment of Excessive Perspiration.—Bardet, in excessive and odorous perspiration in the feet or axillæ, combines with bathing and the application of alcohol the use of the following powders:

French chalk (Talc)	40 parts.
Subnitrate of bismuth	45 "
Permanganate of potassium	13 "
Salicylate of sodium	2 "

To be finely pulverized.

Rice powder may be used in the following combination:

Rice powder	60 parts.
Subnitrate of bismuth	25 "
Permanganate of potassium	10 "
Powdered French chalk (Talc)	5 "

To be thoroughly mixed, and finely powdered.—*Les Nouveaux Remèdes*, May 8, 1888.

The Treatment of Furuncles of the Ear with Alum.—Grasch reports good results from the use of alum in solution in furuncles in and about the ear. Pain was speedily relieved, suppuration was checked, and permanent recovery followed. — *Berliner klinische Wochenschrift*, No. 18, 1888.

Sabre-cut upon the Skull, with Indication for Trephining.—At a meeting of the Vienna Society of Physicians on May 11, 1888, Nothnagel exhibited a girl aged eighteen, who nearly a year previous had received a sabre-cut from behind on the head, knocking her senseless. Half an hour later, when consciousness returned, paralysis of the right arm and leg, and diminished sensation, were present. The paralysis gradually disappeared, and the wound healed. Fourteen days after the healing of the wound convulsions occurred in the right leg, which were present when the patient was exhibited. The upper extremity remained normal, the lower was paretic; the convulsions consisted of clonic spasms, rapidly following each other, and persisting for one or two minutes; there was no disturbance of sensation, but the muscle sense was impaired. The scar, four inches long, indicated the location of the lesion in the brain, at the upper extremity of the central convolution. The process going on Nothnagel diagnosed as a chronic disturbance of function of this region, or the periodic action of an irritant. The formation of osteophytes on the periosteum or pachymeningitis he considered the probable condition present. The treatment indicated is surgical interference, which offers an excellent chance of perfect recovery.—*Wiener medizinische Presse*, No. 20, 1888.

Atheroma of the Kidney.—In the *Archiv für klin. Chirurgie*, Bd. 36, S. 304, Schlegtendal reports a case of true, congenital calcareous atheroma of the kidney, in a man of twenty-two, found at the autopsy. The case is unique, as but one specimen of atheroma of the kidney (Museum of the College of Surgeons, New York, 1904) is mentioned by Paget.—*Fortschritte der Medicin*, June 1, 1888.

A Case of Extirpation of the Spleen.—Prof. C. Liebman, of Triest, in the *Centralblatt für Gynäkologie* of May 26, 1888, reports the case of a peasant, aged twenty-eight, who had never suffered from any grave disorder or intermittent fever. Since her second confinement, in May, 1885, she noticed a hard swelling to the left of and below the umbilicus, which for a long time remained stationary, and at first caused no discomfort. About five months before admission into the hospital, the swelling began to grow and became so troublesome that she was incapacitated for work, and asked for the removal of the tumor.

On the 25th of November, 1887, the patient was found pale and weak, with anæmic mucous membranes. Nothing abnormal was found in the chest. Liver dulness normal. The splenic outline was evident to the eye, and extended in the axillary line from the eighth to the tenth rib, with a longitudinal measurement of about two and three-quarters inches. The abdomen was enlarged by an ovoidal tumor, of the size of an adult's head, with a smooth surface, somewhat depressed in the middle, resting in the pelvic inlet, rather more to the left of the middle line. The tumor was evidently intraperitoneal, movable in all directions, and could be brought to the margin of the ribs on both sides, but not beneath them. The abdominal walls could be moved upon the tumor without friction sound. Distinct systolic blowing sounds could be heard over the tumor. The uterus was normally mobile, slightly retroverted; the left ovary could be distinctly felt, the right not. The uterus followed the lateral movements of the tumor, in so far that when the tumor was moved toward the right, the fundus uteri was distinctly pushed to the same side; on the contrary, the uterus scarcely moved when the tumor was drawn to the left. Raising the tumor, the uterus remained in place. Urine was quantitatively and qualitatively normal. Appetite moderate; digestion good.

The diagnosis of a neoplasm of the peritoneum, or of the ovary, was made, and the menstrual period was awaited for the performance of laparotomy.

The operation was performed on the 13th of December. An incision about seven inches long, was made in the

linea alba. The great omentum exhibited enormously enlarged vessels, and entirely covered the accessible portion of the tumor. The hand was inserted into the abdominal cavity, and the uterus and atrophied ovaries found to have no connection with the tumor. The latter was easily removed, and proved to be the spleen, enlarged to about four times the normal size, its convex surface directed forward; the suspensory ligament of the spleen was tied with two ligatures. The hilus, of the thickness of the little finger, was divided by the blunt director into three parts (the middle containing the artery), and each mass tied separately; three-fourths of an inch toward the median line a single ligature was applied to the whole, another close to the spleen, and then the hilus was severed with scissors. The operation did not last long, and the loss of blood was slight.

The removed spleen, drained of blood, weighed 22.18 ounces, was 7.08 inches long, 3.93 inches wide, of homogeneous, firm texture.

The progress of the case was good, and the bandage was removed on the eighth day. The abdominal wound was completely healed by first intention. On December 21st, menstruation commenced, with dragging pains in the lateral abdominal regions, particularly on the left. On the second day of the menstrual period, the temperature suddenly rose to 105.2°; the pains became very severe, and an exudation to the left of the uterus could be detected. The exudate grew rapidly in the course of the following days. The high degree of anæmia, the rapid development of the exudation, its doughy consistence excited the suspicion that the parametritis was possibly hemorrhagic. As fluctuation could not be detected, treatment was expectant (quinine, antipyrin, tonics, ice-bags). The exudation then gradually diminished, and, after a month, was markedly reduced in size. The anæmia also improved. In a few weeks the patient was considered as completely cured, and, on the 28th of March, discharged.

Unfortunately, the blood was not examined prior to the operation. One hour after, however, with repeated comparative examinations, the white corpuscles were found increased seven-fold. In the course of convalescence, the leucocytes did not increase, so that, in this case, the influence of the extirpation of the spleen upon the increase of white corpuscles failed of demonstration. With the progress of convalescence, and with the strengthening of the patient, the number of white corpuscles naturally diminished, and upon the discharge of the patient only slightly exceeded the normal. During the whole time, enlargement of neither the thyroid gland nor of the lymphatic glands was observed.

Subsequent, repeated examinations by different colleagues confirmed the strange fact that the apparent splenic dulness was very varying; at times, it was very evident; at other times again, less marked, and, now and then, hardly detectable. Nor was its outline constant; at times it appeared larger, at other times smaller, and had a changing shape; in other respects, the dulness was normal, descending one intercostal space with full inspiration. Liebman explains this by the presence of fecal masses filling the left flexure of the colon.

Leaving out the cases of partial or complete extirpation of the spleen after injuries to the organ, as far as the author can learn from the accessible literature, there have been forty-six instances of extirpation of the spleen (the two of Zaccarelli and Ferrerius, cited by Credé, in Langenbeck's *Archiv*, Bd. xxviii. S. 404, cannot be counted), with only fifteen recoveries. The apparently high mortality is explained by the fact that the operation was performed eighteen times for leukæmia, and all of these cases speedily terminated fatally. Thus, the fifteen recoveries are to be considered in connection with the remaining twenty-eight cases, in which the operation was performed for the most varying indications. If it be remembered that many of the operations belong to pre-antiseptic days, the mortality may be viewed as still less high.

Particularly fortunate were the results of extirpations of wandering spleens. The author is familiar with ten such operations (including his own), with eight recoveries: one each by Czerny and Martin, in Germany; Polk, Nilsen and Leonard, in America; Thornton, in England; and Ceci, Urbinati and Aonzo, in Italy. Only two were fatal. In Urbinati's case, the progress was favorable until the fourth day, when death occurred almost suddenly from twisting of the stomach, enormously distended with gas. At the autopsy there was no sign of hemorrhage or of peritonitis. The extirpation of the spleen *per se* was not the cause of the fatal issue. The woman operated on by Aonzo died in three hours, of shock; the splenic tumor weighing, without blood, 144.66 ounces.

It is not to be conceived why the extirpation of a floating spleen should have a worse prognosis than the removal of an ovarian tumor, when, on the one hand, it is considered that splenectomy, of itself, is not more difficult nor more dangerous than ovariotomy; and, on the other, that the animal economy suffers no particular injury in the ablation of the spleen, as the many experiments upon animals, the cases of loss of the spleen after injuries, and the as yet few successfully conducted extirpations prove.

Glycerin Suppositories for Habitual Constipation.—BOAS, in the *Deutsche medizin. Wochenschr.* of June 7, 1888, states that in a large number of cases he has had good results from the use of glycerin enemata as a purgative; but in some cases, particularly those with hemorrhoids, or in individuals with an irritable rectal mucous membrane, which readily bleeds, the use of the syringe is no slight objection, so that the injections must be intermitted or entirely refrained from. The use of the syringe is also inconvenient. For these reasons he has had prepared suppositories consisting of capsules containing 16 minims of pure glycerin, which he has used in twenty cases, with the best results. The suppositories have been found to retain their form and efficacy for many weeks. Fifteen to twenty minutes after using one there is a desire to go to stool, but without tenesmus or other discomfort; soon followed, as a rule, by a copious evacuation. The employment of glycerin per rectum seems specially indicated when, with the constipation, there exists gastric disorder.

Anthrarobin: a Substitute for Chrysarobin.—DR. BEHREND (*Viertl. f. Derm. u. Syph.*, 1888, 2 Heft, S. 261) has made experiments with a substance discovered by Professor Liebermann, of Berlin, named anthrarobin, which has an analogous action to that of chrysarobin and pyrogallic acid, being less active than the former and more active than the latter. It produces less inflammatory irritation than chrysarobin, and does not present

the dangers of absorption which attach to pyrogallic acid. In dispensing, it requires to be rubbed up with olive oil before being mixed with the ointment basis. Ten and twenty per cent. ointments are used. Although it is insoluble in water, it becomes soluble by the addition of borax, and is also very soluble in alcohol and glycerin. Anthrarobin 10, borax 8, distilled water 80, is one formula; anthrarobin 20, borax 35, alcohol and glycerin each 90, is another formula. Anthrarobin stains the skin and linen, although not so intensely as chrysarobin, and so little irritation does it produce that it may be applied to the head and face, and even to the eyelids. The alcoholic tincture is preferred to the ointment, and the action of this substance is much increased if the part is washed with soap, particularly with potash soap, before it is used. It acted successfully in cases of psoriasis and erythrasma. It cures psoriasis less quickly than chrysarobin, but more quickly than pyrogallic acid.—*British Medical Journal*, June 9, 1888.

Laparotomy in Tubercular Peritonitis.—Of fifty-four cases of laparotomy in tubercular peritonitis collected by TRZEBICKY (*Wiener medizin. Wochenschr.*), four died from the immediate consequences of the operation, while in a fifth, death occurred, soon after the operation, from acute miliary tuberculosis, though the fluid had not reaccumulated. One case died, in four months, of general tuberculosis, without the peritonitis disappearing. Cures resulted in forty cases, though, here and there, advance of pulmonary tuberculosis was reported. The majority of cases were in females, which may find its explanation in the fact that most were operated upon under an error in the diagnosis of ovarian cyst. The statistics are yet too meagre, the correctness of the diagnosis not entirely above doubt, and the period of observation after operation not long enough; but, in view of the results, there is no longer any justification for expectant treatment. Even though, in some cases, recovery was not permanent, the fluid did not reaccumulate, and the patients were relieved of their distress. Spontaneous recovery from tubercular peritonitis is exceptional; and operative interference is indicated the more, as it would seem that, in many cases, tuberculosis of the peritoneum is a primary affection, and the source of general infection.

As all other therapeutical measures are futile in such cases, and laparotomy, under antiseptic principles, may be considered free from danger, the operation is certainly indicated. It consists in a free incision, and thorough evacuation of the fluid.—*Memorabilien*, May 31, 1888, from *Centralblatt f. d. ges. Therap.*, 1888.

A Rare Form of Quinine Eruption.—WERNER, of Markgröningen, relates the case of a woman aged fifty-nine years, who took six grains of quinine daily for headache, tinnitus aurium and vertigo. After the second grain, she had chills, and, during the night, pains in the joints of the hand and fingers. The fingers were uniformly yellowish-red, without swelling, and numb. Withdrawing the quinine, in three days the redness and all abnormal condition had disappeared. When twenty-four, the patient had a "sort of intermittent fever," for which she took quinine, without particular effect, but without any other manifestations. A year and a half later, taking quinine for facial neuralgia, large and small red spots with vesicles at once appeared all over body, particularly at the joints of the upper extremity, which disappeared on the following day. Shortly after this she suffered with angina Ludovici. During convalescence, quinine was ordered, and, after the second dose, a red, burning eruption appeared in the neighborhood of the site of the operation. Eleven years later, one hour after taking quinine again for a facial neuralgia, she had rigors and an eruption on the arms.—*Therap. Monatshefte*, March, 1888, from *Würtemb. Corr. Bl.*, 1888, No. 5, p. 35).

Codeine to Relieve Abdominal Pains.—DR. LAUDER BRUNTON states (*British Medical Journal*, June 9, 1888) that the results he has obtained from the administration of codeine have satisfied him that it has a powerful action in allaying abdominal pain, and it can be pushed to a much greater extent than morphine without causing drowsiness or interfering with the respiration or with the action of the bowels. It is, therefore, specially indicated where a dilated heart and consolidated lung tend to make one afraid of morphine. Codeine is also specially indicated where one wishes to relieve the pain without interfering with the action of the bowels. On the other hand, in cases in which there has been much diarrhœa, as in some cases of malignant disease of the colon or rectum, the absence of any tendency to lessen peristaltic movement is rather a disadvantage to codeine as compared with morphine or opium.

He has found that in cases of long-continued enteralgia without organic disease, it has continued to relieve pain for months together, without the dose being increased beyond one grain three times a day, and he found the same to be the case where the presence of a tumor, in addition to other symptoms, had led to the diagnosis of malignant disease.

The Treatment of Round Ulcer of the Stomach.—GERHARDT writes that dietetic treatment is the basis of all proper treatment in these cases; milk diet is most suitable for recent cases; peptones should be given preferably by enemata, as they often irritate the stomach. In hemorrhage and peritonitis enemata only should be given. Morphine should be used as little as possible. Chloride of iron should be prescribed when possible; the weak alkaline waters should be used (Carlsbad) except in very anæmic patients. Washing out the stomach should only be employed in recent cases, as the weakened stomach walls may rupture in old ulcers. In persistent pain in an empty stomach nitrate of silver is indicated. Condurango is an excellent tonic in old ulcers of the stomach. A gastric ulcer may be considered healed when the patient gains in weight, when gastric pains cease and when no sensitiveness on pressure exists over the epigastrium.—*Berliner klinische Wochenschrift*, May 7, 1888.

The Subcutaneous Injection of Antipyrin.—WOLFF, of Breslau (*Therap. Monatshefte*, June, 1888), thus summarizes the uses of antipyrin subcutaneously: 1. In muscular rheumatism. 2. For the chest pains of phthisis. 3. For the neuralgias of superficial nerves. 4. As an aid in diagnosis. 5. In attacks of asthma. 6. For painful conditions, when morphine is contraindicated, or to replace the latter, particularly in children and those who bear morphine badly.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JULY 14, 1888.

THE CAUSES OF PUERPERAL INFECTIOUS DISEASES.

AFTER the doctrine of the infectious nature of puerperal fever had been generally accepted, efforts were, of course, made to discover the ultimate cause. Especially did the youthful science of bacteriology give great impetus to such investigations. Though the results were fruitful, in so far as finding germs was concerned, yet they seemed to do little more than confirm what clinical experience had taught, namely, that the disease was not always due to the same cause. And just as erysipelas, sepsis, diphtheria and some other usually surgical diseases were looked on as the foci of infection, so, in later researches, the streptococcus pyogenes or that of erysipelas or sepsis or diphtheria was found in the lesions of those who succumbed to childbed fever.

But, while the diseases named were and are clearly distinguishable, their minute causes are by no means so. Microörganisms of the genus streptococcus are found as causes in erysipelas, phlegmon and some septic diseases, and as an accidental occurrence in diphtheria, in five conditions, which have many striking resemblances to each other. In appearance and mode of growth, they vary so little, that the points of difference are believed by many to be caused by variations in the nutriment. Inoculations show some, though slight, difference of action. The thought was, therefore, very near to consider them as identical, and assume that the resulting form of disease owed its type to some peculiarity, variable or constant, of the individual. Or, it was urged, that the species underwent "variations," a view advocated with enthusiasm by bacteriologists with evolution theories fresh in their minds.

VIDAL has reported to the Academie de Médecine de Paris the results of his studies of the "forme septicémique pure" in puerperal fever, or typhoid type without suppuration (*Gaz. hebdom.*, No. 22, 1888). In all of his cases, he found the streptococcus pyogenes, and from this and the result of his culture and inoculation experiments, he comes to the conclusion that it is impossible, in the present state of our knowledge, to distinguish between the various forms of streptococci, and that one and the same form can set up any of the various forms of puerperal infection. In all of these conclusions, he is confirmed by DOYEN and by ARLOING (*L'Union méd.*, No. 74, 1888).

This is strong evidence, though it will require a much larger consensus of public opinion to settle definitely the questions as to the various kinds of streptococci, as well as the affections caused by them.

It is highly probable that many cases of puerperal fever, especially of the septicæmic type, are cases of mixed infection by putrefactive bacteria, and that to these are due the symptoms of intoxication by ptomaines, which distinguish some cases.

Practically, the unity or variety of the coccus is of no importance. Anti-bacterial remedies are no more potent against one form than another, and safety is only assured when all possible sources of infection are kept far away from the favorable soil offered by the *post-partum* genitals.

A STATUE TO THE PHYSICIAN-PATRIOT, BARTLETT.

ON the Fourth of July, at Amesbury, Mass., a handsome bronze statue of DR. JOSIAH BARTLETT, the revolutionary statesman, was unveiled; and the occasion was rendered memorable by a poem contributed by the poet Whittier.

Bartlett was born in Massachusetts, and there obtained his classical and professional training, but at the age of twenty-one he removed to New Hampshire, with which State his fame will ever be identified. For fifteen years he devoted himself earnestly and intelligently to medical practice, and acquired eminence therein; but in 1765 he became a delegate to the Provincial Assembly, and from that time on-

ward, for a period of thirty years, his activities were almost exclusively absorbed in public affairs. He was an ardent patriot—as were nearly all the doctors of his time, although, in the beginning, he was courted by the royalists on account of his commanding abilities and popularity.

He was born for leadership, and he had all the heroic qualities that made him worthy to participate in the stirring events of the revolutionary period. He was a member of Congress on that eventful July day, when the roll was called, with Bartlett's name the first upon the list, and he voted "with bold and unwavering voice" to declare the independence of the colonies. As a signer of the Declaration his name is immortalized and stands second, that of Hancock, the President of the Congress, alone preceding it. He also, for his State, subscribed to the Confederation of 1778, in the forming of which he assisted. He carried a sword into the field, and was present under Stark at the fight at Bennington. After the peace, he was elected to many of the highest offices in the gift of people; he was Chief Justice, and Governor, and Senator-elect to Congress.

To Bartlett, as the patriot and statesman, it is fitting that such honor as the sculptor and poet can accord should be given. Of Bartlett, as a physician, comparatively little is known, except that he appears to have been both scholarly and independent. It is said that he favored the use of Peruvian bark in malignant sore throat, epidemic during his time, and in some other conditions in which its employment was frowned upon by the profession of that day; and that he was one of the founders of the Medical Society of New Hampshire, and was its first President from 1791 to 1793.

In addition to Bartlett, four other physicians have the undying honor of having been signers of the Declaration of Independence, namely, Benjamin Rush, Matthew Thornton, Oliver Wolcott and Lyman Hall.

HOSPITALS ON THE HIGH SEAS.

A proposition has been made by the *Lancet* in favor of fitting out ships for the accommodation of phthisical patients and of convalescents generally, with the object in view of supplying these cases with the purest of sea air. These vessels, it is recommended, will cruise within easy reach of such ports as will afford them fresh vegetables and water; and, according to the season, they will sail either in southern or northern waters. They will have a staff of efficient medical officers; and every appliance and means of treatment will be provided.

There are very many persons who, with ample means at their command, are suffering from lung-hunger and lung-thirst and might regain their lost health if they could, in some manner, get access to the limitless supplies of fresh and pure ocean air, for the like of which they pant at home. It is claimed for the cruising ocean hospital that it will combine certain advantages which are sought to be obtained, but not always with success, by the construction of sanitariums at great elevations to provide phthisical and other invalids with an abacterial air; more especially will it enable a change of location at the bidding of the seasons; it will bring its inmates into contact with air that is salt—and tonic, on that account, to a large proportion of respiratory patients, and not unduly rarefied, and it will avoid some of those excessive fluctuations as to the humidity and temperature of the air that are experienced at some of our land health resorts.

The Massachusetts Medical Society having found that the essays placed in competition for the Shattuck Prize were rarely worthy of the prize, which, on the last occasion, amounted to one thousand dollars, has decided to divert the fund to the purposes of a "Shattuck Lecture" to be given on some subject in accordance with the original provisions of the bequest. The lecture is to be delivered at the annual meeting of the Society, and the honorarium for it and its publication are to be defrayed from the income of the Shattuck Fund.

A very unusual event is the governmental suppression of a medical journal, which has recently taken place at Cairo, Egypt, in consequence, it is alleged, of an article upon Asiatic cholera and the necessity of a rigid quarantine of all vessels from Indian ports. The journal in question was a struggling little periodical, published in Arabic, and called the *Shifa*.

The event is described in a letter by Dr. Grant-Bey to the *Albany Medical Annals* for June, in which he states that he was the author of the obnoxious article, and that strong views in favor of a genuine quarantine against cholera are regarded as highly injurious to the trade interests of England, and that for this cause the little *Shifa* was smothered by the authorities. Dr. Grant-Bey also says that the offending article was in part undertaken and written

for the *Shifa* in order to describe to the native physicians a visit made to him by Virchow, who was at that time in Egypt with the explorer Schliemann, and who, on all suitable occasions, sought to impress upon the Egyptians the importance of hygiene and of adopting modern sanitary methods. This, moreover, we learn from the London *Lancet*, was the theme of Prof. Virchow in an address before the Medical Society in Cairo, newly organized under the presidency of Dr. Salem Pacha.

THE American Otological Society will hold its twenty-first annual meeting at the Pequot House, New London, next Tuesday, and on the following Wednesday and Thursday, July 18th and 19th, the American Ophthalmological Society will hold its twenty-fourth annual session at the same place.

THE thirty-sixth annual meeting of the American Pharmaceutical Association will be held at Detroit on September 3d.

THE faculty of the New York Polyclinic have decided to increase the clinical facilities of that Institution by establishing a spacious hospital immediately connected with the college building. It will be opened for the reception of patients in October next.

THE eighth annual meeting of the Lehigh Valley Medical Association will be held at Paxinosa Inn, near Easton, on Wednesday, August 15th.

THE "Société d'Ophthalmologie de Paris" was organized at Paris on June 12th. It is an association of ophthalmologists, to which only Frenchmen are eligible to membership, but which will receive and discuss communications from specialists of all countries. For 1888, Chevallereau is President, Chauvel Vice-President and Gorecki Secretary.

SCANZONI has resigned his position as instructor at Würzburg. The authorities have conferred upon him the honorary privileges of citizenship.

THE Seventh International Ophthalmological Congress will be held at Heidelberg, August 8th to 11th, and a number of American ophthalmologists have gone abroad to participate in its proceedings.

A HYGIENIC Exposition will be opened at the Industrial Palace, in Paris, on July 20th. Among the members of the committee in charge are Berthelot, Larrey, Dujardin-Beaumetz and Monin.

PROF. ADAMKIEWICZ has resigned his chair at Cracow, to reside at Berlin.

PROF. LEUTHOLD, of Berlin, has been made body physician to the Emperor William.

THERE are 4767 attendants at the current session of the Berlin University.

REVIEWS.

OPHTHALMIC SURGERY. By ROBERT BRUDENELL CARTER, F.R.C.S., Ophthalmic Surgeon to St. George's Hospital, etc.; and WILLIAM ADAMS FROST, F.R.C.S., Assistant Ophthalmic Surgeon to St. George's Hospital, etc. Illustrated with a chromograph and 91 engravings. 12mo. pp. 554. Philadelphia: Lea Brothers & Co., 1888.

IN joint authorship it is common for the senior, or more widely known associate, to lend his counsel and the prestige of his name; while the junior writes the bulk of the book. But in this case the custom has been honored in the breach. To each chapter are appended the initials of the writer; and we find, of fifteen chapters, eight, including 282 pages, are signed R. B. C.; while seven, covering 250 pages, are from W. A. F.; and the literary style of the different chapters attests the truth of the signatures. In the division of subjects, most writers would think that Carter had had the first choice, his including anatomy and physiology, examination of the eye, diseases of the cornea, sclera, iris, the lenticular system, optic disk, retina and choroid, glaucoma, amblyopia, and amaurosis. Still Frost, among affections of the eyelids, lachrymal apparatus, and conjunctiva, the vitreous, ocular muscles, and orbit, injuries, errors of refraction, and color vision and its defects, finds some subjects that he is especially competent to discuss, his account of the refraction of the eye and its anomalies being particularly good.

The work contains nothing of importance that is entirely new to the literature of ophthalmology. But there are many things to be found in the current periodical literature, which have not, heretofore, found place in the text-books. Matters like the omission of iridectomy, or of subsequent bandaging, in cataract extraction; the use of passive motion in ocular palsies; the new substitutes for enucleation; the appearances of air bubbles in the vitreous; the recent scepticism as to *amblyopia ex anopsia*, are all mentioned, although on most of these points the writers express rather conservative views. And, what is almost unique in a book of European authorship, the writings of American ophthalmologists are very fairly treated.

The chapter headed "Anatomy and Physiology" might, with equal propriety, have been headed Diagnosis; for it is devoted mainly to that most important branch of diagnosis—the differentiation of morbid from normal

phenomena, and the anatomical and physiological explanation of symptoms. The facts, well presented in this and the succeeding chapter, on the Examination of the Eye, should be familiar to every general practitioner of medicine.

Mr. Carter well urges, as the first canon in the treatment of keratitis, or iritis, "the negative one to do no mischief;" and he supports it with an interesting experience of the bad effects of irritant (so-called astringent) collyria in the latter affection. What is said of irritants in keratitis is also good. But he does not sufficiently bring out the fact that obstinate inflammation of the cornea is very often dependent on inflammation of the conjunctiva lining the lids; and while it is very important to keep silver nitrate or copper sulphate off the cornea, to effect a cure, it is equally important to apply them regularly and effectively to the surface of the everted lids.

In appendices are given specimens of Snellen's distance test-types, reading types after Jäger, the groups of dots used for testing vision in the army, and formulæ. Among the latter we note that for a solution of homatropine hydrobromate, six grains to the fluidounce, not strong enough to be relied on to paralyze the accommodation. While of boric acid, which, in powder, produces no marked effect when dusted on the conjunctiva, a solution of four grains in the fluidounce of water, is spoken of as "a mild astringent for conjunctivitis." This suggests the question, Do we sufficiently appreciate the "astringent" properties of pure water?

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, June 13, 1888.

The President, J. Solis-Cohen, M.D., in the Chair.

Dr. William H. Parish read a paper on

THE MANAGEMENT OF DELIVERY PRIOR TO THE SEVENTH LUNAR MONTH.

In the management of delivery prior to the seventh lunar month, he said, the welfare of the mother is alone considered. The non-viability of the embryo or fœtus removes it beyond consideration. It is true that the question as to whether the threatened abortion or miscarriage is inevitable or not will frequently arise, and will challenge most anxious study, for upon the continuance of the pregnancy hangs the life of the intrauterine being if it is still living. His purpose, however, in this brief communication was to discuss the management of only the inevitable deliveries prior to the viability of the offspring, and not to treat *in extenso* of any other part of the general topic of abortion or miscarriage.

Delivery during the early weeks of pregnancy is attended with a minimum of risk to life, yet subinvolution, often with endometritis and endosalpingitis, frequently follows such an abortion. About the third month, begins the actual danger of death from hemorrhage and septicæmia, and this danger increases as the period of pregnancy at which delivery occurs advances, up to the time when viability of the child begins and the phenomena of labor at full time more or less pertain. It should be borne in mind that crippling of the functional sexual capacity of the woman is liable to result whatever the period of non-viable delivery.

The treatment of such a delivery is divisible into the expectant and the active plans. The chief difference between these two plans consists, on the one hand, in securing artificially the emptying of the uterus if nature does not effect this promptly, while, on the other hand, such interference is strictly avoided, at least until symptoms determine danger to the patient. During the early weeks, there not arising practically any danger of loss of life, the plan of non-interference is not departed from by its advocates, and is adopted by not a few of those who resort to the more active treatment in the more advanced deliveries.

In early abortions, say prior to the end of the second month, in addition to rest for eight or ten days in bed or on the lounge, he has practised during late years antiseptic cleansing of the uterine cavity by means of one injection of a corrosive sublimate solution 1 to 4000; after the escape of the ovum he resorts to only one injection and always uses a return-tube catheter. He has not thought it necessary to resort to the curette prior to the second month, except when by reason of instrumental interference septic infection is especially liable. During the third month, in addition to the antiseptic intrauterine injection, he uses a smooth wire curette, preferably immediately after the escape of the ovum, resorting at the same time to the injection. It is during and after the third month that dangerous hemorrhage may arise. If the patient is confined to the recumbent posture, danger from this source, however, rarely occurs. If the bleeding appears, however, before the os is sufficiently dilated to admit of emptying the uterus, he tampons both the cervical canal and the upper vagina. For this purpose he prefers strips of baked cloth, because of the ease of introduction and of removal. Antiseptic syringing is resorted to both before the introduction and after the removal of the tampons. The tampon should not be resorted to as a routine treatment. Hemorrhage that is not controlled by the postural treatment and by cold applications is the only indication for the tampon. After the os is dilated, the best way of treating the hemorrhage is to empty the uterus and to inject into its cavity hot antiseptic water.

In the absence of serious hemorrhage, the rule to avoid rupturing the membranes should be rigidly adhered to, inasmuch as an unbroken ovum tends to prevent or to check hemorrhage, and if the ovum is delivered with unbroken membranes, the placenta is most likely to be expelled in an intact condition. If the membranes have been broken, the embryo or fœtus usually escapes from the uterus, while the placenta and membranes remain within the uterus and are probably adherent to it. Suppose the embryo or fœtus has escaped; then, as is well known, the placenta and membranes will usually be expelled within twenty-four hours; yet in a large proportion of cases they will remain within the uterus for days, weeks or months. Does the continuance of the placenta within the uterus for even a few days at a non-viable period of pregnancy bring dangers to the patient? The answer to this must be absolutely in the affirmative. Such danger is a very considerable one to life, from both hemorrhage and septic infection. And even should the patient escape with her life, he does not believe that any ever escapes without serious injury to the childbearing

apparatus. Under such circumstances, arise conditions which are likely to produce sterility or to determine subsequent abortions. Such patients suffer, it may be throughout their sexually active lives, with disturbances of the functions of the vagina, uterus, tubes, ovaries, bladder and rectum, with varying degrees of other local and constitutional suffering.

Septic changes of the products of conception under such favorable conditions of warmth, moisture and contact of atmospheric air are developed so rapidly, that although absorption is probably not as rapid as at or near the full period of gestation, no one can say how soon the process of septic infection begins. The incipiency of such blood-poisoning is not heralded by any definite symptom. Even the rise of temperature, as shown by the thermometer, is not fully reliable unless observed every hour or two, and to wait until hemorrhage, or a rapid pulse, or a chill, or decidedly high temperature supervenes will prove in not a few instances to be waiting until a fatal result is inevitable. Or, should the uterus have emptied itself within a few days without evidence of danger of death, still in the great majority of such cases he believes that grave, and it may be permanent local damage will have resulted. We are told to let the placenta remain until there are evidences of danger, and then to remove it. Wherein is benefit to be derived from such a rule of practice? Is it not wiser to take due precautions against fire than passively to await the development of flames within the building? An abortion or miscarriage is a non-physiological accident; it is unnatural and pathological. There is no weight then in the argument that artificial removal of the placenta is unnatural and unphysiological, and hence should not be resorted to. Its retention brings to the woman her greatest danger, both as to life and to future usefulness. A uterus promptly and rightly emptied, uninjured by traumatism and rendered aseptic, becomes a source of comparatively little, if any, danger.

As in labor after the child has become viable, so in abortions or miscarriages, ergot is of great service after the uterus is empty. It then encourages involution, checks excessive lochial flow, expels clots and lessens septic absorption. Before the uterus is empty, this drug is seldom of more than limited value, and often is productive of actual harm.

When the hemorrhage is considerable and the ovum is intact, its administration will aid in controlling the loss of blood, but even here the tampon is usually sufficient. He believes that he has repeatedly seen the use of ergot retard the completion of the delivery by determining an undilatable condition of the cervix. Such belief has been strengthened by finding that under such circumstances the administration of an opiate hastens the delivery by relaxing a cervix that has been rendered rigid by ergot. In incomplete miscarriage there is nothing more uncertain than the action of ergot. After its use, the uterus may not empty itself for days or weeks, while the cervix closes so as not only to prevent the escape of the placenta, but also to prevent easy artificial extraction.

If you decide upon emptying the uterus, what is the best method of doing so? Prior to the third month, the small size of the cervical canal renders the introduction of the finger difficult, and the curette is here sufficiently efficient, either before or after the escape of the ovum. The thickened decidua may then be readily removed with this instrument.

After the third month, we have chiefly the placenta to deal with, and here the introduced finger is safer, more efficient and more reliable than any curette. The finger more thoroughly and more certainly removes all the products of conception, and tells the presence or absence of such complications as polypi, fibromata, etc. When reliance is placed solely on the curette, the uterus may be supposed empty when it is not; fragments of placenta and of membrane, or even the entire placenta may be left, with extreme risk to the patient.

If one is present at the time of the escape of the embryo, and the placenta remains, he should at once, while the os is dilated, introduce his finger into the uterus, and while depressing and steadying the uterus with the other hand over the abdominal wall, disect off *en masse* and completely the secundines and remove them. To effect this, it may be necessary to give an anæsthetic. After emptying the uterus, it should be at once syringed with a hot corrosive sublimate solution.

There will be, in all probability, no indication for a repetition of the intrauterine injection, though daily intravaginal antiseptic syringing for eight or ten days has been the author's practice. If the case is not seen until several hours have elapsed, and the placenta is still within the uterus, and ergot has not been administered, the os will be sufficiently dilatable to admit of an immediate resort to the prompt treatment. If, at that time, the cervix has already contracted because of ergot, the suspension of the ergot and the administration of an opiate, with non-interference of a few hours, will secure a dilatation of the os to such an extent as to permit the emptying of the uterus with the finger. If a number of days, or weeks, or months, have elapsed and the symptoms indicate an incomplete emptying of the uterus, and the cervical canal is closely contracted, it will be better to dilate either with laminaria tents or with graduated bougies, and to introduce the finger, than to rely upon any form of curette. After grave septic poisoning has occurred, a cervical canal that has been previously contracted undergoes a relaxation, and the placenta becomes detached or is so loosely adherent that its removal with the finger is usually a very simple procedure, and is, according to even the expectant practitioner, urgently demanded; but, immediately following removal of the placenta under such circumstances, evidences of more intense poisoning are frequently observed, and in many such cases a fatal termination eventuates.

There is but one form of curette that should ever be used for the removal of any of the products of conception. The perfectly dull wire curette is the only safe one. Every form of the sharp-edged instrument should be absolutely avoided. Simon's scoop is a dangerous instrument in the hands of the most careful. Much of the opposition to the curette is based upon the use of that or other cutting instrument. Even with the dull wire, due caution must be used not to injure the uterus. A softened womb may be penetrated by even a dull instrument. Dr. Parish's preference for the finger over the curette is based, however, rather upon the uncertainty as to the efficient working of the dull curette than upon its dangers. It would seem scarcely necessary to caution any one not to mistake the somewhat elevated and roughened placental site for portions of the placenta itself; but in one instance

he saw such a mistake made by an inexperienced gentleman who made active efforts with Simon's scoop until the uterine tissue was extensively gouged into by that dangerous instrument. Experienced men have left large masses of placenta—in fact, the fœtus and its placenta both—*in utero* after the cavity has been curetted. The possibility of double pregnancy with separate placentæ must not be lost sight of. He has seen an instance in which the physician removed with his finger, under anæsthesia, one fœtus with its secundines, and left within the uterus, unrecognized, a second fœtus and its placenta, until uterine contraction secured their expulsion.

Dr. Parish did not refer to the various complications of non-viable deliveries. They are numerous, and may call for special additional measures, but the management of the delivery rests upon no peculiar principle. Criminal abortion brings with it greater dangers, but usually the management does not differ materially from that of the non-criminal delivery. In the criminal variety septic infection may occur before the abortion or miscarriage has begun, and the expectant plan of treatment is attended with the greatest dangers. An injudicious introduction of the sound may engender a septic inflammation of the endometrium and determine a fatal result, before any part of the ovum is expelled. Under such circumstances, non-interference contributes to death.

In inevitable abortion he has repeatedly emptied the uterus by compressing the body between two or three fingers within the vagina and in front of the uterus, and the other hand over the abdomen. He has also secured, in a few instances, a prompt ending of an incomplete abortion or miscarriage by the injection of hot water into the uterine cavity, of course securing its ready outflow. The hot injection awakens active corporeal contractions with cervical relaxation, and, if the fluid is antiseptic, diminishes the danger of infection.

Dr. William Goodell took exception to but one point in this admirable study, and that was, to the use of the dull curette. He has given up the use of the dull curette, for several reasons. There is great danger of wounding the endometrium in its soft, thickened and vulnerable state. Then there is this very danger, the speaker had mentioned, of mistaking the placental site for tissue that should be removed, and the further danger, which he also admitted, of perforation. He was sure that he once penetrated the wall of the uterus with a sound, and without using any force—though, fortunately, he escaped an evil result. There is danger of wounding that portion of the uterine wall which is not at all implicated, if he might so express it; and especially, two or three days after the abortion, would this cause a liability to the creation of a fresh raw surface upon perfectly healthy tissue, with additional danger of infection. He uses two styles of forceps, one a small catch-forceps, which will seize anything that projects, or, still better, a small fenestrated polypus forceps, which can grasp any projecting mass, however small, and that only.

Dr. Regar asked how we can tell that the uterus is completely cleaned out? The finger cannot always determine with certainty. How long are we to keep up examinations and attempts at cleansing?

Dr. J. B. Walker thought that as long as the os is patulous the uterus contains something that needs removal: after removal contraction will occur. That has been his experience in several cases. He would ask Dr. Parish whether the rule holds good in all cases?

Dr. H. A. Slocum rather feared to follow the advice given to permit the ovum to escape entire. He remembered two cases which fortunately terminated favorably, but which gave him much anxiety, in which the escape of the ovum entire was followed by alarming hemorrhage. One of these was in a well-developed florid woman who had a history of repeated miscarriages. When he was summoned, she was bleeding slightly, and the labor pains were strong and constant. With his finger in the vagina he waited for the ovum to be expelled entire. It came with a gush of blood that blanched the ruddy face of the patient and left her pulseless. He was compelled to remove the pillows, elevate the foot of the bed, and with finger and hand endeavor to excite uterine contractions, after which, with hot water injections and other appropriate measures, the bleeding was controlled. When a uterus is distended with its contents, and the placenta leaves its site, and the large mass is suddenly expelled, it seemed to him that the sinuses will be left wide open, and the contractile vigor of the uterus will not suffice to close them.

He agreed with the advice to remove the placenta as soon as possible. He recalled a case, however, in the practice of a distinguished practitioner, in which, for what reason he did not know, it was left for six weeks free in the cavity, becoming hard and leathery, and was then removed under anæsthesia. His only connection with the case was to give ether, so that he knew nothing further of the circumstances than that the placenta remained for six weeks without giving rise to any bad symptoms.

Dr. W. E. Ashton took exception to the speaker's low estimate of the value of ergot. While it is contraindicated, except with a tampon, yet if the tampon be introduced and ergot then administered, the effect will be much more prompt and sure, and the presence of the tampon will prevent anything like hour-glass contraction. After a complete abortion he should consider intrauterine antiseptic irrigation uncalled for, and rather dangerous as tending to introduce air, and, therefore, germs, into a uterus which is otherwise in an aseptic condition.

Dr. Parish said, in reference to the use of the dull wire curette, Dr. Goodell could not have heard his remarks, or he must have failed to express himself clearly. He does not use it except at one stage, that is the third month; never after the placenta has been formed. He prefers the finger for many reasons, as he stated. Even with the dull instrument there is some risk of injury, and the method is unreliable. Dr. Goodell and he accord perfectly after the third month. Before the differentiation of the placenta, however, the smooth wire curette will detach and remove the deciduous membrane with no danger. He has used forceps, though not exactly the same form as spoken of, but the objection is that we cannot be sure with any form of instrument whatever that the uterus is empty. The finger alone tells us that. It is not only a therapeutic but a diagnostic appliance. It must be very rare for the uterus to possess the power to expel the ovum unaided and then fail to take care of itself. There must be some special morbid condition to which the hemorrhage is due. In the case narrated by Dr. Slocum, with its history of frequent miscarriages, he should have suspected a polypus.

He combines the use of ergot with the tampon, should the latter be insufficient when the ovum is intact to give a smooth mass on which to contract. Antiseptic injections are indicated after such a pathological process as a miscarriage. He doubted if the uterine cavity usually closes air-tight after such a process. Not infrequently there is a separation of the uterine from the fœtal layer of the placenta, with adhesion of the uterine portion. This adherent maternal layer is liable to give rise to septic inflammation and general infection. The patulous condition of the cervix is, to some extent, an evidence that the uterus is not empty, but the reverse does not hold good. It would be unsafe to conclude that everything had been expelled because the os is found to be contracted.

THE ONTARIO MEDICAL ASSOCIATION.

The Eighth Annual Meeting, held at Toronto, June 13 and 14, 1888.

(Specially reported for THE MEDICAL NEWS.)

(Concluded from page 25.)

THURSDAY, JUNE 14TH.

DR. A. HALFORD WALKER, of Hamilton, read a paper on the

TREATMENT OF NEURASTHENIA AND HYSTERIA BY REST.

After referring to the distinguishing characteristics of the two diseases, so frequently associated together, the author took up the question of the causes of the great increase of neurasthenia during the past few years, which he enumerated as follows:

1. Hereditary predisposition.

2. The school system of the present day, which he strongly and justly condemned, showing how utterly impossible it is for young girls to obtain sufficient recreation to enable them to become healthy wives and mothers, if they follow the curriculum and apply themselves sufficiently to their studies to keep abreast of their work.

3. Monotony of occupation. He strongly advised every one to have some pursuit outside of regular business, to cause a healthy reaction between body and mind.

4. The marriage of weakly people, which tends to produce offspring of the neurasthenic type.

He then considered the question of treatment, and showed by illustration what it is capable of doing after all other means have failed.

DR. BRAY, of Chatham, read a paper on

UTERINE HYDATIDS,

giving details of two cases, with expulsion of the contents of the uterus and recovery.

DR. MCPHEDRAN, of Toronto, showed a case of

SPLENIC LEUKÆMIA,

in which the spleen was very large. The patient was a clergyman, aged thirty-nine years, who enjoyed good health up to within three months ago, when the splenic enlargement was noticed. When first seen by Dr. McPhedran, one month ago, there was one white to thirteen red corpuscles, and the red were reduced to about sixty per cent. of normal, and they appeared deficient in coloring matter. Now the ratio was one to eight and one-third, but the red were decidedly of a deeper color, though reduced to only one-half the normal number. There were, besides, many hæmatoblasts. Notwithstanding this further depreciation in the character of the blood, the patient was feeling more bouyant and believed himself much better. The blood was demonstrated to the Association by a number of microscopes.

DR. HUSBAND, of Toronto, read a paper on

LIFE INSURANCE AND THE RELATION OF THE PROFESSION THERETO,

in which he set forth the duties of medical men in examining for insurance, that the work should not be done cursorily but conscientiously, as otherwise life insurance could not be successfully carried on. The general opinion of the Association seemed to be that the fee insurance companies allow is altogether inadequate to the duties to be performed.

DR. MCFARLANE, of Toronto, read a paper on

LAPAROTOMY FOR INTESTINAL OBSTRUCTION.

After pointing out the inefficiency of the methods of treatment pursued up to the present, he emphasized that laparotomy is the only rational course to adopt, and that it should be resorted to early and under the most careful antisepsis. The various steps of the operation were described, and the necessity for the greatest attention to all the minutiæ impressed upon all his hearers. The difficulties to be overcome were: (1) retaining the distended intestines in the abdominal cavity; (2) finding the seat of obstruction; and (3) deciding on the best method of dealing with it. Puncture of distended bowel was objected to as not safe; large, flat, warm sponges should be used to retain them in the abdomen. To locate the seat of obstruction, pass in the hand and examine all possible seats of hernial protrusions. Treves advises then to examine the cæcum; if not distended, the seat of obstruction will be above the colon. Then trace the small intestine up till the obstructed point is reached. If a part of the bowel is gangrenous, the question lies between making an artificial anus and exsecting a portion of the intestine. Of these two steps, the author was inclined strongly to advocate enterectomy in preference to an artificial anus. Illustrative cases were then cited. In conclusion, the writer urged the importance of early operation, as gangrene of the bowel has been known to occur within thirty-six hours after obstruction.

DR. YEOMANS, of Mount Forest, for diagnostic purposes, classified these cases as follows:

1. Mechanical, as volvulus, intussusception and hernia with strangulation.

2. Inflammatory, as peritonitis, enteritis, typhlitis.

Operative interference should be promptly resorted to in the first, and the expectant plan in the second.

DR. RICHARDSON, of Toronto, had no positive, but much negative evidence to offer in these cases. He had seen many cases die for want of operation, but he had seen no case relieved spontaneously. Hence, operation is to be recommended in all cases in which there is any probability of affording relief. He related a case in which obstruction had resulted from gas being forced through an ulcer in the mucous coat, causing separation of the mucous from the muscular coat, and thus pressing the mucous membrane to the opposite as completely to occlude the bowel.

Dr. Temple, of Toronto, read a paper on

THE RANGE AND USEFULNESS OF PESSARIES,

in which he said that with increased experience he resorted to pessaries less and less. Many cases which he formerly so treated he now relieved with tampons and suitable applications, not forgetting the general health of the patient.

PUERPERAL ECLAMPSIA, AND THE USE OF PILOCARPINE.

Dr. Irving reported a case of puerperal eclampsia treated first with morphine, potassium bromide, chloral, bleeding and croton oil. These measures failing, and a fatal issue seeming inevitable, one-third of a grain of pilocarpine was given hypodermatically. In about ten minutes, the dusky hue of the skin became changed to a natural color, and profuse perspiration, salivation and bronchorrhœa ensued. The convulsions, which had been very frequent for many hours, ended only two hours after action of drug began. Coma and stertorous breathing gradually gave way to peaceful slumber, and patient made a good recovery. Her urine had been laden with albumin. There was only slight pitting of ankles.

Dr. Olmsted, of Hamilton, then read a paper on

THE ANTISEPTIC TREATMENT OF INJURIES OF THE HAND.

He cited a number of cases to show the wonderful vitality of the hand and nature's ability to repair badly lacerated tissues, and by so doing making a protest against heroic surgery. He pointed out the advantages of moist dressings in badly lacerated wounds and the advantages of an early incision in palmar abscess, and the insertion of a short drainage tube in neglected cases. The whole hand should be enveloped in oakum which had previously been soaked in a solution of bichloride, a ring of oakum being placed around the drainage tube to prevent any obstruction to the outlet; wax paper or Mackintosh covering the whole.

THE REPORT OF THE COMMITTEE ON NOMINATIONS

was made as follows, and that the next place of meeting be Toronto.

President.—Dr. W. H. Henderson, of Kingston.

Vice-Presidents.—Dr. Geikie, of Toronto; Dr. Howitt, of Guelph; Dr. Day, of Trenton; and Dr. Aikman, of Collingwood.

Corresponding Secretaries.—Dr. Lovett, of Ayr; Dr. Gillies, of Teeswater; Dr. Trimble, of Queenston; and Dr. Leonard, of Napanee.

Treasurer.—Dr. N. Powell, of Toronto.

Secretary.—Dr. D. A. Gibbwishart, of Toronto.

The Association then adjourned.

CORRESPONDENCE.

THE OCTO-CENTENARY CEREMONIES AT BOLOGNA.

(*From an Occasional Correspondent*)

Bologna, when we arrived, was like an ant's nest stirred with a stick: flags, people, pretty women, students, soldiers—amusing and confusing. It was the day before the celebration began, and we had time to see the town in a night drive; the people were dim shades under the endless, arcaded streets; now and then a priest or two like darker shadows. The gray walls of the old city lacked nothing but the color of flags, court-dresses, soldiers and window-draperies to make the picture perfect.

On Tuesday, at 10 o'clock in the morning, we went to the great hall of the Syndic. The crowd at the door was dense, but we struggled in and wandered through vast museums and libraries with low bookcases, and over them the coats-of-arms of distinguished students. The servants were in black, with steel chains, silk stockings and pumps, and, in the crowd, soldiers and students in gowns of the red, yellow or black of various universities lent a color, amid a babel of tongues, all defiling into a great, arm-blazoned hall. On a platform stood Guerrachi and Capellini, Rector of the University, who presented us *en masse* to the Syndic.

At four, we put on our dress-coats to go see the King unveil Victor Emmanuel's statue. It was hot to slay as we went through the municipal palace to the Cathedral Plaza, where seats had been built in the big oblong square. Behind lies the civic palace, to the right the huge gray front of the unfinished Duomo, to the left the grand façade of the palace of Barbarossa's grandson, and in front a vast palace, now a bank. From every window hung red, yellow, blue and gold draperies, royal arms, gold on scarlet. In the middle of the seats was a dais with three velvet seats, and over it a crown and endless banners. Every one was in full dress, with chains, ribbons and decorations. When we were seated, the whole vast space filled with students in fancy dress and caps of many colors; next came soldiers and a dozen bands. Every window was full and 25,000 people in the plaza, with thousands of red, white and blue fans going, and at last the King and Queen and Prince came, and the band rolled out the Hymn of Italy, and a great roar arose "Viva el Re!" The statue was unveiled, some one made a speech and it was over.

Next morning early, we were all at the civic palace, and each delegation waited under its banner for tickets to be given out for the Syndic's dinner in the evening. The scene was curious. Universities from Melbourne to Harvard were represented by costumes past belief, gowns and hoods of all tints; all the French in yellow silk, one Hungarian in black with coral and gold buttons, gold lace, full cravat, etc.

Then we marched through the crowded and draped streets to the University.

The hall was a vast open court, two arcades high, filled above with men, women and uniforms, the pillars covered with lilies, roses and daisies—the Queen's flowers, the throne on one side, twenty feet from us, the bands all in the upper arcade, the students, with their old, battle-torn flags, in the outer circle below. The King, Queen and Prince came in and sat down, while the delegations in succession presented their addresses, one member speaking for all—Story for us; then we were presented to the royalties, shook hands with the Rector and fell back again, and so on from nine to two—the heat intense. In the evening, a good dinner at the Syndic's, round us a lot of Oxford Dons and Yankees—no speeches, and music low and gentle.

Next morning at nine, we met again in the covered court of the Archiginnasio—throne, flags, students, bands and gowns. The Deans of the Faculties read each a brief Latin exhortation, and then a list of the *laureati*, those

receiving the honorary degrees, Lowell in letters, some dozen in law, Agassiz in pure science, and in medicine Virchow, Liebermeister, Charcot, Spencer Wells, Weir Mitchell and others. The whole list was read first, and then the names called one at a time. As each went up, Dr. Guerrachi bowed, the Rector put on the finger of the *laureatus* a huge emerald seal, emblematic of marriage and fidelity to the University, then both greeted him, shaking hands. The Rector presented an illuminated diploma with a great seal, the recipient advanced, bowed to the King and Queen, who bowed in return, retired a few steps backward, and went down to his seat, amid the cheers which greeted all in turn. The Italian crowd cast fragrant bay leaves down upon the *laureati* as they went back through the streets.

A CANNABIS INOICA MIXTURE FOR PHTHISIS.

To the Editor of THE MEDICAL NEWS,

SIR: Dr. Bradshaw, in his article on "Some Points in Treatment at the Memorial Hospital, Orange, N. J." (THE MEDICAL NEWS, June 30, 1888), refers to a cannabis indica mixture I introduced into hospital use, and gives its formula. That was the one used several months ago. The mixture, as thus prepared, is very pungent and to some persons distasteful.

Messrs. Parsons & Co., of Orange, have, at my request, altered the original formula so as to make it read as follows:

Tr. cannabis indicæ . . .	f℥viij.
Ext. verbas. thap. fl.,	
Ext. verben. hastat. fl. (known as blue vervaine) . . .	āā f℥v f℥ij.
Syr. simp.	Oj.
Elix. aurant.,	
Tr. aromat.	āā f℥xij.
Mel. despumat.	f℥xxxij.
Spts. chloroformi	f℥iv.

Sig.—℥j to ℥ss p. r. n.

This is an elegant and palatable mixture, and affords great relief to many who use it. In some instances it increases the appetite, seldom impairs it; does not nauseate or constipate; hence, may be taken for long periods without harm.

Very truly yours, J. W. STICKLER.

EARLY MEMORY.

WE have received the following interesting note from a correspondent whose professional eminence is an unqualified endorsement of the accuracy of his observation:

To the Editor of THE MEDICAL NEWS.

I have recently seen in the medical journals that "Dugald Stewart was once asked what was the earliest thing he could remember. He said it was being left alone by his nurse in the cradle, and resolving to tell of her as soon as he could speak."

This may have been copied as a joke; but it brings to my mind the following statement that I have made from time to time for many years, which has always been received with derision, but which is a perfectly distinct remembrance in my mind: I remember being jolted over the crossings, in a baby-wagon, by a nurse, and resolving to tell of her as soon as I could speak.

June 9, 1888.

NEWS ITEMS.

The German Physicians of the late Emperor Frederick have published a statement concerning their participation in his case, an abstract of which has been cabled to the Associated Press and appeared in the daily papers. They state that in May, 1887, they pronounced the disease to be cancerous and recommended that the larynx be opened and the growth on the left vocal cord be excised —"a small operation which promised the best results." Of seven such operations which Von Bergmann had performed, all were successful. Sir Morell Mackenzie was then called in and opposed the operation and, the report states, gave his assurance that after a few weeks of treatment the patient would recover his voice and be able to command the autumn manœuvres. Dr. Gerhardt accuses Mackenzie of having removed for microscopical examination by Virchow pieces of tissue from the unaffected part of the throat.

Dr. Schroetter states that when he first examined the patient's throat in November, 1887, he decided that he was suffering from a cancer so far developed as to make it necessary to extirpate the larynx. Mackenzie, he says, then admitted that the growth looked like a cancer, but the Emperor Frederick refused the plan of extirpation because of the risks attending it. The German physicians thereupon signed a declaration placing the responsibility of the case upon Sir Morell Mackenzie.

Sir Morell Mackenzie is reported to have unqualifiedly denied the correctness of the above statement by the German physicians, and that in the course of a few days he might be able to publish a statement of the details as to the character and conduct of the case, from which, at present, he is precluded by State reasons.

International Congress of Dermatology.—Amongst those who have already accepted office in connection with the International Congress of Dermatology to be held in Paris in August, 1889, are: Dr. Ricord, Honorary President; Professor Hardy, President; MM. Emile Vidal, Ernest Besnier, Alfred Fournier, Hallopeau, Quinquaud, Tenneson, Henri Feulard, members of the Initiative Committee.

The South American Sanitary Congress. — *La Cronica Médica* of Peru publishes the articles agreed to at the American Sanitary Congress recently held at Lima, and signed by the delegates of Bolivia, Chili, Ecuador and Peru. The Congress had for its object the establishment of an international sanitary system amongst the South American States, with a view of checking the development and spread of infectious disease, especially cholera and yellow fever. Plague is also mentioned as a form of disease which is to be considered as coming under the regulations. The scheme provides for intelligence offices in each country, from which information as to the existence and progress of an epidemic shall be forwarded as promptly as possible—by telegraph in some cases—to the sanitary offices of the other South American States. A large number of minute instructions as to the use of disinfectants are drawn up, and a number of stringent rules relating to the admission of ships from ports where infectious disease exists to *pratique* are laid down. The time of quarantine in case of cholera is to be eight days,

and that in case of yellow fever ten days. Ports are in no case to be closed.—*Lancet*, June 30, 1888.

An Exhibition of Life-saving Fire Apparatus.—The strong public feeling aroused by the recent calamitous fire in Edgware Road as to the urgent necessity of all houses, especially large business premises where the higher rooms are occupied as sleeping apartments, being provided with ample and suitable appliances for securing the speedy escape of the inmates in case of fire, has led Dr. George Danford Thomas, coroner of Middlesex, to arrange for a display of life-saving apparatus and the various methods of preventing and extinguishing fires. This exhibition will be held at the Portman Rooms, Baker Street, W., at the end of July next, where the public will have an opportunity of being instructed in the use of fire-escape appliances and of testing their value.—*British Medical Journal*, June 30, 1888.

St. Joseph's Hospital, in Vienna, has received a donation of 50,000 florins (about $20,000) from Nathaniel v. Rothschild, for the erection and maintenance of an isolated ward for the care of children with infectious diseases.

Artificial Maturation of Wine by Electricity.—Signor F. Mengarini has published some results obtained by passing a powerful current of electricity, equal to nearly four milliampères, through various samples of Italian wine. Some acetic acid was found, and a perfume was imparted to the wine similar to that acquired by maturing. It is suggested that, if electricity can be made to destroy the mycoderma aceti so as to prevent the formation of acetic acid, it may prove a valuable method of treating wine. It is well known that it was at one time proposed to add salicylic acid to wines with this object. These are not the first experiments of the kind that have been made, as a short time ago Blaserno and Carpene examined the effect of the galvanic current on wine, and found that artificial maturation was thus induced, or, at all events stimulated, various oxidation products being formed.—*Lancet*, June 30, 1888.

Ladies' Kiosks in London.—The International Hygienic Society has done good work in a new direction, and the action it is now taking in supplying a much-felt, but unspoken, want of ladies in the shopping and promenading districts of the West-end, and of the working women in business thoroughfares, will certainly be one of the most important benefits that could be conferred upon these classes. The want has been a well-arranged place, where for a small sum a lady at a distance from home may retire to refresh herself with the necessary comforts of a lavatory, and where also she can rest for a little in quiet, write a letter and leave or receive parcels. The institution to be known as "The Ladies' Kiosk" will meet this want in a liberal and common-sense manner, and at a trifling charge. The Society named, proposes to place these kiosks in requisite quarters over London, and, having obtained two sites from the Duke of Westminster, has already nearly finished two buildings in two of the most frequented districts—in Grosvenor Street and Park Street.

The kiosk in Grosvenor Street is situated at the corner of that street and Avery Row, and is only forty yards distant from Bond Street. It is Italian in style, is faced with white bricks, and has stone dressings to the door. On entering, there is a small vestibule to be devoted to cut and other flowers—the former for sale—opening into a lobby with a marble dado and decorated walls. This lobby leads into a passage, from which open three apartments, with excellent sanitary arrangements and a communicating bell in each. The floor above has two more apartments, and close to, but quite separate from them a handsome lavatory, fitted up with two basins, with hot and cold water. There is also a dressing-table with general toilet requisites. The top floor contains a room for the attendant, who will live on the premises. On this floor is the water cisterns room. In the basement is the kitchen and living room of the attendant, and also a place with shelves for the storage of parcels. The attendant will be prepared to serve tea at a fixed tariff should it be called for. The building is heated in winter by hot water, and is lighted throughout with gas. The structure is highly ornamental, rounding off as it does the angle formed by the two streets, and thus obtaining a very prominent position. The kiosk in Park Street is similar in internal treatment, but is slightly larger, and has also the advantage of a writing room with appropriate furnishing. It stands close to the Marble Arch and Hyde Park. The cost of the two erections is stated to be £3000.—*Nursing Record*, June 28, 1888.

Dr. George v. Adelmann, Emeritus Professor of Surgery and Ophthalmology at the University of Dorpat, died at Berlin, on June 16th, aged seventy-seven years. He was graduated at Marburg, in 1835, and became an assistant at the medical clinic of Heusinger. In 1837, he was made an assistant at the surgical clinic of Ullman. In 1841, he was called to the chair of Surgery at Dorpat, made vacant by the departure of Pirogoff for St. Petersburg, which position he held for thirty years, until 1871, when he was made Emeritus Professor. He then removed to Berlin, taking a lively interest in scientific questions. He was a frequent contributor to medical literature. He presided at the last meeting of the Union of Berlin Surgeons, on June 4th.

The funeral ceremonies were held on June 19th, in the chapel of the Surgical Clinic of the University. A eulogy was pronounced by his former pupil and son-in-law, Prof. v. Bergmann.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 3 TO JULY 9, 1888.

Bentley, Edwin, *Major and Surgeon.*—Retired from active service, July 3, 1888, by operation of law.—*S. O. 153, A. G. O.*, July 3, 1888.

Crosby, William D., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended one month.—Par. 8, *S. O. 151, A. G. O.*, June 30, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JULY 7, 1888.

Crandall, R. P., *Assistant Surgeon.*—Detached from the U. S. S. "Saratoga," and ordered to the U. S. S. "Galena."

Peck, George, *Medical Director.*—Placed on the retired list, on the 9th instant.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, JULY 21, 1888. No. 3.

ORIGINAL LECTURES.

THE CEREBRAL PALSIES OF CHILDREN.

Clinical Lectures delivered at the Infirmary for Nervous Diseases.

BY WILLIAM OSLER, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA, PHYSICIAN TO THE PHILADELPHIA AND UNIVERSITY HOSPITALS AND TO THE INFIRMARY FOR NERVOUS DISEASES.

LECTURE II.

INFANTILE HEMIPLEGIA (*Concluded*).

SYMPTOMS.—Complex and varied as are the symptoms of infantile hemiplegia, they fall naturally into three divisions: those of the onset, those pertaining to the paralysis, and the sequences; and in this order we shall consider them. The period of *onset* is usually characterized by convulsions and coma, indicating serious disturbance of the brain functions; but there are exceptions to the rule. Thus, in three cases the disease came on *suddenly*, in apparently healthy children, without spasms or loss of consciousness.

Case IX.—Nellie M., æt. twelve years. H., 280. Came on when one year of age, suddenly, with pains; no spasms; whole left side affected; gait hemiplegic; arm and leg swollen and shorter than fellows. Right calf eleven and a half inches, left eleven; biceps, right eight, left seven and three-quarters; dynamometer, right sixty-five, left thirty-five; left side is cold.

Case XXXVIII.—William M., æt. four years and six months. I. P.$_4$. 84. Good family history; was well until three years ago. While playing he became suddenly powerless on right side; had no convulsions, but was comatose for a time; no fever. The face was included and the loss of power was complete. Is a delicate child. Some mental deterioration. Had convulsions ten days before application and now cannot walk.

In Case LXXVII., the hemiplegia came on while the child was dressing one Sunday morning, after an indisposition of a few days' duration.

A *latent*, gradual onset is more common and was noted in ten cases.

Case III.—Joseph D., æt. two and a quarter years. H., 219. When six months old the mother noticed loss of power on the right side. This condition persists; the hand is closed, and there is talipes varus of the foot.

Case VII.—Daniel McS., æt. four years. H., 253. Natural labor. When one year old it was noticed that he could not sit up and seemed weaker than natural. Has begun to walk within the past few weeks. Has right hemiplegia with contraction of flexors; walks very badly; does not talk, but understands what is said to him.

Case LXXI.—Alphonse N., æt. fourteen years. H., 299. Is one of eight children, five of whom died in infancy. Walked at two years and then walking gradually became impaired. There was no sudden attack. *Status præsens:* Right arm and leg wasted; the right shoulder-joint and blade project, and the whole side looks smaller. The hand is cold and there is marked mottling of skin of legs and arms; choreic movements of right arm, and at times an irregular, jerky motion of the right leg; reflexes present; superficial exaggerated on affected side; heart normal.

Case LIII.—Frank H., æt. fourteen months. I.P.$_4$. 169. Healthy and strong when born. When five months old, while teething, went into a fit, at first very severe, almost every hour for a week, then once or twice a week. Has them now on Mondays, in the afternoon. Noticed feebleness of left side of body; does not know exactly when first observed. There is loss of power on the left side; with contracture of the left arm and hand, with shortening and contractures in left leg. Cannot walk or even stand alone. Improved, particularly the arm, under treatment.

Case LII.—Henry I., æt. five years. I.P. b., 37. Parents healthy; healthy at birth; never has used left hand. At eight months observed that thumb was drawn across the hand, fist closed; this became worse. Began to walk at two years, then noticed that left leg was weak. Had a fit at eight or ten months, another a year later, none since. Mind not good. Grip good; contraction in biceps, supinator longus and muscles of hand; hand flexed at right angle, can be easily made straight. Arm much smaller than right.

Convulsions. In the majority of the cases the disease began with convulsions, partial or general. In fifty-two of the ninety-seven cases on our records, this history was given, which corresponds very closely with the figures of Wallenberg: forty-three of eighty-eight cases in which the history was definite; thirty of the eighty cases collected by Gaudard, and in "more than half" of the eighty cases of Gowers.[1]

The following set of cases will illustrate the prominence which this symptom deserves in the clinical history of infantile hemiplegia.

Case X.—Reta O'N., æt. two years and four months. H., 285. When fifteen months old, in April, during teething, had a convulsion; perfectly well before the attack, which came on suddenly and was confined to the left side and lasted eight hours. In July she had a second attack, the convulsions lasting twenty hours. After the April attack there was complete paralysis of left arm, leg and part of face; no strabismus. The second attack did not increase the paralysis. She had begun to recover power before the July convulsions. Reflexes increased on affected side.

[1] Gowers: A Manual of the Diseases of the Nervous System London, 1888. Vol. ii.

Case XX.—Francis H., æt. five years. I.P.$_1$, 81. Two older children. Healthy child until eighth month, when teething. It then had convulsions, four in number, very violent, which were followed by left hemiplegia. The fits have continued ever since at intervals of a few weeks. Has never walked; intellect feeble; left arm and hand contracted and stiff, but the stiffness can be overcome; the forearm is shorter; stands on the inside of right foot.

Case XIX.—Ella H., æt. four years. H., 309. Was well until her second summer. One night had a convulsion, and in the morning was found to be paralyzed on the left side. Gradually recovered, and can now walk well, though stiffly, and the leg assumes various positions while at rest; attempted movements of the arm will bring on associated movements of the leg and foot. In walking the arm is carried stiffly, extended and pointed backward. Voluntary movements of the hand are slow and performed with difficulty; the fingers do not grasp well; reflexes are a little increased on left side.

Case XX.—Nellie P., æt. five years. H., 316. One of three children; eldest child had spasms; parents healthy; was natural when born. Convulsions when one year old, while teething; they were confined to the right side and lasted from 8 A.M. to 5 P.M. After this the side was paralyzed. Has had no spasms since. Uses arm awkwardly with some incoördination. The right hand and arm are smaller than left; walks with an apparatus.

Case XXVII.—Lewis P., æt. sixteen years. I.P.$_1$, 209. Born healthy. At the age of three months was seized with spasms. There is a doubt whether or not they were confined to the right side. This was followed by partial loss of power on right side. Has never used arm and leg well since, and they are now shorter and in a state of rigidity. The leg is dragged and the gait is hemiplegic; arm and hand very rigid; intellect somewhat impaired.

Case XXIX.—Elizabeth W., æt. seventeen years. I. P.b., 142. Family healthy; child was healthy when born, and well up to twelfth month. Had a slight fit and lay insensible all night. Was thought to have water on the brain and was leeched. Was ill four weeks. Paralysis then came on, involving left side except the face. Leg rapidly recovered power and she walked in a month. The left arm and leg shorter than the right, and the muscles are stiff. Has power of movement in the arm, and the fingers are flexed, and she does not use them. The left arm is two and one-quarter inches shorter than the right, and the left leg one and one-quarter inches shorter than the right. No difficulty in speech. Intellect impaired.

Case XXXII.—Joseph McC., æt. two years. I. P.$_4$, 28. Mother very nervous. Attack came on November 7, 1882, when the child was about a year old. He had vomiting and purging, convulsions and coma, after which the paralysis affected the left side; came on suddenly. Face not involved. The paralysis has not improved much. Reflexes increased on left side.

Case XXXV.—Agnes H., æt. six years. I. P.$_4$, 55. Healthy as a baby; dentition slow. When sixteen months old had convulsions, fever, and sudden paralysis of right side of the body, involving the face. Gradual return of power in face; gait hemiplegic.

Case XLII.—Joseph H., æt. eighteen months. I. P. 3, 189. Natural labor. Child healthy when born. In October was taken suddenly with high fever; no convulsions. The fever subsided in a week. He continued very irritable and nervous for a month. Week before Christmas had convulsions, lasting for fourteen hours, and he was paralyzed in the left arm and leg. The following day unilateral spasm began and continued until evening. He has never had any more spasms. The palsy continues, with, of late, improvement in the leg. *Present state:* Weakness and partial palsy of whole of left side with considerable rigidity of flexors of fingers: no deviation of face now, though there was some at first. Died of the unilateral convulsions just eleven months after onset of the disease.

Case XLIV.—Mary M., æt. nineteen months. I. P. 3, 165. One other child has had spasms. In July had "spasms." Woke from sleep in them; the left side was convulsed and, after spasm, found to be palsied. Two days later had eighteen attacks; after this left arm and leg seemed a little better. Face was drawn to left side. After a few days ceased having these violent spasms. Began to walk in two months. Since then she has had momentary attacks of unconsciousness, occurring at first daily, now every two or three days. *Present state:* Healthy looking; no atrophy of muscles; no contractions. Left arm and leg weaker than right. Falls easily. Face not drawn.

Case XLIX.—Mary M., æt. fourteen months. I. P. 3, 337. Youngest of three children. Well until July 6th, when she had spasms all afternoon and evening. No fever or diarrhœa. Said to have had congestion of lungs. Face, arm and leg on right side palsied. Began to move right leg at end of week. Arm still palsied.

Case L.—Jennie A., æt. fourteen years and ten months. H. 1, 348. Was healthy when born. Labor natural. Enjoyed good health until about a year old, when she had convulsions, suddenly followed by coma, which lasted several days, and, on recovery, she was noticed to have lost power on the left side of face, arm and leg. For several months the palsy persisted, but she gradually regained the use of leg and then of the arm, but the face has never changed; for this she now comes to the hospital. *Status præsens:* A fairly well grown girl, rather nervous and timid, and the father says she worries herself and has fits of despondency. There is complete paralysis of the lower facial muscles on left side; mouth is drawn to the right. Can shut the eye, wrinkle, and elevate the brows, but there is no movement of the lips on left side, nor does the ala expand. Face on this side a little smaller. No loss of sensation. Arm is used quite well; no weakness of hand. Dynamometer: R. 75; L. 65. Can run well; no difference in the legs. Reflexes normal. On watching the face it is noticed that, from time to time, there are choreiform twitchings in the muscles of the face on the left side; most marked when the muscles of the normal side are in action. Quantitative, but no serial changes in electrical reaction of the paralyzed muscles.

Case LIV.—Thomas McR., æt. ten years. Well until eight months old, when he had spasm of the left hand, and the whole left side seemed weak. No statement as to general convulsion. When two years old had seven convulsions, and has had eight since then. Fever often precedes the attacks. There is contracture of the left arm, and the hand is weak, though the fingers can be moved. There are, at times, slight spasmodic movements in pronation. Left leg drawn up by contraction of gastrocnemius.

Case LV.—Joseph D., æt. eleven years. I. P.a., 107. Healthy when born. When three months old had convulsions, after which it was noticed that he did not use the right hand. Had twitchings and spasms as an infant, and, at three years, a severe convulsion lasting from 10 A. M. to 10 P. M. Has not had violent spasms since. Walked when two years old. *Status præsens.* Walks badly on account of contraction of right gastrocnemius. Movements of right arm limited. Cannot extend the wrist; fingers flexed. Grip fairly good.

Case LVI.—Harry S., æt. three years. I. P.a., 159. Well until the tenth month, when, during an attack of catarrh, he had a severe convulsion lasting seven hours, chiefly on right side, and for three days lay in a stupid, semi-comatose condition. Could not use the right arm after it, and the right leg was weakened. The mouth was drawn to the left side, but became straight again. When a year old had a second convulsion while teething. Gait hemiplegic; cannot lift the toes; right leg well nourished. Contraction and spastic condition of the right arm.

Case LIX.—Mary H., æt. six years. C. D. C., 80. Parents healthy; one brother had convulsions while cutting teeth. Healthy until third year. Fit came on while in perfect health. Fit began on left side, then became general; lasted nine hours. Insensible for some hours. Could not see for two days. Left side completely paralyzed. Could not move left side for three months; improvement beginning in hand. At end of year could walk. In September had fits again, but was not more paralyzed. Fits again in March. Three attacks of fits since. Last attack, one year ago, completely palsied the left side again. Ever since first attack mind affected; bad temper; bites. No atrophy of left arm, no contracture; left arm seems weak; walks and runs. Has fits now.

Case XXX.—Christian A., æt. eight years. I. P.a., 19. Healthy when born. When six months old had very violent fits. When three years of age had one day convulsions from 4 A.M. to 7 P.M. Had summer complaint badly during the first eighteen months of life. After the first fit lost power on the right side of the body and in the limbs. Chorea gradually developed. *Status præsens:* Is well grown and intelligent; goes to school. The right arm and hand are weak, and he can flex and extend the fingers, but when he attempts to perform any volitional act, irregular movements come on and prevent their successful performance. The grasp of the right hand is decidedly weaker than that of the left. When at rest the right hand is closed and the thumb flexed across the palm. The right leg is colder than the left and the heel is drawn up by contraction of the gastrocnemius. The foot is inverted, pes equinovarus. There are no choreic movements in the leg. The tendo Achillis was cut and an apparatus applied which relieved him very much and enabled him to walk much better.

Case LXIX.—Henry L., æt. fourteen years. When eighteen months old had general convulsions which lasted ten days, and left the right side paralyzed. Gradually recovered the use of the leg, but the right arm is atrophied and weak, and displays constant choreic movements. No contractions. Walks quite well; general health good.

Case LXXVIII.—Amanda C., æt. thirteen months. I. P. 3, 375. Born without instruments. In October, when seven months old, had spasms and was unconscious from Saturday to Wednesday. Spasms began in left arm and right leg. On Wednesday the arm and leg were noticed to be palsied. *Status præsens:* Is unable to sit alone; falls toward the left side. Rigidity and contractures of left arm and leg, with marked choreic movements. Muscles not wasted. The thumb is turned into hand.

Loss of consciousness almost invariably accompanies the convulsions, and may last from a few hours to many days. In a few instances coma occurred without convulsions.

Case IV.—Lizzie E., æt. twenty-one months. H., 237. One of two children. Was healthy when born and until sixteen weeks ago, when, in the evening at 10 o'clock, had a most intense headache. She had seemed to have frontal headache for about two months. She became unconscious and did not revive until 11 o'clock. She attempted to rise but fell to one side. She was able to walk upstairs and nothing wrong was noticed in the limbs. The next morning the child could not move the right arm or leg, and had lost completely the power of speech. Three days after could move the leg, and walked again in three weeks; regained speech on third day. Has for the past seven weeks begun to use the arm. Patellar reflex is increased on the affected side.

Case XLVIII.—Bertram T. B., æt. five years, I P. 3, 279. Family history good. Elder of two children. Two years ago, in July, had an attack of left hemiplegia. Unconscious for six weeks; no convulsions. At end of six weeks began to move right arm and leg. Two months later began to move left leg. Has not improved much since. Considerable wasting on left side, and the foot is somewhat smaller than right foot.

Fever. The records are not complete on this point, and it is not often mentioned whether or not the temperature was elevated. Fever may be transient or persist for weeks as the following cases illustrate:

Case XLV.—Lewis S., æt. two years. I. P. 3, 11. Youngest of six children; others healthy. Parents healthy. Well until September. While playing on floor, fell over, and on examination it was found that he did not use left arm and leg well. Paralysis of leg soon became complete and of arm incomplete. Began to use arm in one week, and, in a month, could sit alone and draw up leg. On day of attack had fever, was restless, did not vomit. No retraction of head and no bladder trouble. Fever disappeared in a day or two; soreness to touch remained for two weeks. *Status præsens:* Has improved very little in leg. Is a well-nourished looking child; left leg atrophied. No difference in length of legs, but left foot one-quarter inch shorter. Can flex and extend leg and thigh; extends foot, but cannot flex it. Flexes and extends toes. Talipes equinus; sensation normal.

Case XLI.—Jennie E., æt. four years. I. P. 3, 195. In April, had fever and delirium lasting almost four weeks. At about end of fourth week the mother noticed that right arm and leg were paralyzed. Speech was also a little affected. *Status præsens:* Right leg a little shorter, about one-quarter of an inch; and foot also. Slight atrophy of leg. Has all movements of leg and arm. Arm slightly atrophied; no change of temperature. In walking she limps, and there is slight "genu recurvatum." There are slight

involuntary movements of affected limbs, noticed when excited. September 24, 1879, movements have ceased; walks better, some rigidity of right arm.

Strümpell, Gaudard, and others mention fever as an invariable accompaniment of the convulsions which usher in the disease in such a large proportion of the cases.

Delirium, which is noted by some writers as preceding or replacing the convulsions, was observed in Cases XLI. and LXXXIV.

Vomiting is especially mentioned in only four cases.

Soreness of the general surface was observed in Cases XLV. and LXIV.

Screaming spells preceded the attack in one case.

Doubtless many children die in the convulsions or in the subsequent coma, without reaching the second or paralytic stage of the disease.

The hemiplegia, which is noticed as soon as the child recovers consciousness, is usually complete. Less frequently there is, at first, paresis which gradually results in complete loss of power, and in some instances the total paralysis was only established after repeated convulsions, as in Cases LIX. and LXXXV. In sixty-eight cases the right side was involved, in fifty-two cases the left.

The *face* is not always affected; the exact proportion is uncertain as the point was not constantly mentioned. As is the rule in facial paralysis of cerebral origin, the superior muscles are not involved, and the child can close the eyes and elevate the brows. Rapid and complete disappearance of the facial palsy is the rule, and, of the cases which returned for examination, in only one did the condition persist, and in this, strange to say, no trace remained of the paralysis of arm and leg. The child, aged fourteen and one-half years at time of observation, had been completely hemiplegic at the age of one year; the arm and legs had gradually improved, but the face was drawn to the right and there were choreiform movements in the paralyzed muscles of the left side. The tongue did not seem to be affected, but the uvula deviated strongly to the right. Dr. Sinkler has at present in the wards a girl aged thirteen, who became hemiplegic in infancy, and has still complete facial palsy; and in Case XCVI., the last of the forceps cases, there were paresis and atrophy of the facial muscles.

As with the hemiplegia of adults, the residual paralysis is most marked in the arm, which displays more or less wasting, and is, as a rule, useless for the ordinary purposes of life. There may be arrest of development, leaving a wasted and withered member; more commonly, there is only a moderate degree of atrophy. In extreme cases the arm is held close to the side, the forearm strongly flexed at right angles and in the semi-prone position; the hand flexed and the fingers contracted in the palm, usually embracing the thumb. Motion may be almost lost in the arm and completely lost in the fingers. In a majority of the cases there is considerable power of movement, and the arm can be lifted above the head and flexion and extension made at elbow and wrist. The finer and more delicate movements of the hand are rarely recovered, and, while many of the cases possess a useful limb for carrying or grasping purposes, actions requiring manipulation with the fingers cannot be effected. The grasping power is often remarkably good. The leg, as a rule, recovers more rapidly and more completely than the arm, and the palsy may completely disappear, an event which very rarely happens in the upper extremity. The wasting is never so marked, nor does arrest of development often occur. In only one case, VI. of the Elwyn series, is the leg much atrophied. But even when of fair size, and of good muscular development, there is evidence of impaired power in the persistent halt which is such a characteristic legacy of hemiplegia. The patient may simply "favor" the affected side, noticeable, perhaps, only on rapid walking. A very perceptible dragging of the limb is more common. There may be tremor of the leg while in motion.

Rigidity was present in a large proportion of the cases at the time they came under observation. So marked is this feature of spasm that the disease has been termed spastic infantile hemiplegia. Although a very frequent, it is not a constant symptom, and there are cases in which the paralyzed limbs are quite relaxed, even years after the onset of the affection. In Cases IV., V. and VII. of the Elwyn series the arm is flaccid; and in Case X. the spasm is very slight. The rigidity disappears during sleep; it is increased by emotion and aggravated by any attempt forcibly to overcome the spasm. When the rigidity is extreme and has lasted for years, permanent contracture may result, in which condition relaxation is no longer possible, on account of the structural changes which take place in the muscle.

The *reflexes* are almost invariably increased in the affected limbs. The knee-jerk is exaggerated, and, in many cases, the ankle clonus can be obtained. As often happens in hemiplegia, the reflexes may be heightened on the sound side. A rectus clonus can sometimes be got, and, in several of the cases, making sudden tension of the spastic fingers developed a clonus on the flexors. In three cases the reflexes were absent—Cases I. and VIII. of the Elwyn series, and IX. of the Infirmary patients. In the Elwyn cases there is rigidity, which in the other is very slight. They are not necessarily absent in the instances of flaccid paralysis.

Sensation is not often disturbed; it has been normal in all the cases which I have examined, and it is not once mentioned in the records as absent.

Vaso-motor disturbances, such as coldness of the affected extremities, blueness and congestion, are not uncommon, particularly when the paralysis is extreme.

The *electrical reactions* are usually normal; occasionally quantitative, but never qualitative changes are noted. None of the recent cases examined in the electrical department, by Dr. Willets, have shown alteration of other than a slight diminution.

Post-hemiplegic movements. It was from this hospital, and based chiefly upon a study of cases of infantile hemiplegia, that Dr. Weir Mitchell first described those disorders of movement which are known as post-hemiplegic chorea, mobile spasm, athetosis, hemi-ataxia and post-hemiplegic tremor. There were thirty-one cases in the entire series which presented these movements. Three varieties were noted:

1. *Post-hemiplegic tremor*, which was present in only one case (LXXXV.), and occurred in the entire arm, chiefly when at rest.

2. *Post-hemiplegic chorea*, or, more correctly, hemi-ataxia. The great majority of the cases, twenty-four in number, come in this division. The movements were in-

coördinate and choreiform, chiefly noted on voluntary effort. Many instances of this have been described in the report of the cases.

3. *Mobile spasm and athetosis*, noted in six cases.

The following are good illustrative cases:

Case XCI.—Mary H., æt. eleven years. I. P. I., 161. When two years old, had "a spell of sickness" which lasted some time, and in which paralysis of the left side gradually came on. She did not walk until the fourth year. . . . She now favors the left side in walking, and the arm and leg are stiff. Has slight power over arm, but it and the hand are in constant, irregular motion; fingers are extended in regular order, and she has no control over them. She can move the arm about quite well.

Case LXXVI.—Edith W., æt. six years. H., 301. Birth natural at full term. Father died of phthisis. At four or five months noticed that the child did not use the right arm. Began at two years to pull herself up by a chair, and at two and a half years learned to walk, and then dragged the foot. Has been improving. Face not affected. Is intelligent. Choreic movements of right hand and arm. January 25, 1888, condition as follows: Is a well-grown, fat child. Walks with a decidedly hemiplegic gait. Sits with hands quiet in her lap, the right on the left. When excited, or on attempting to make any movement, there are irregular choreic movements in the right hand and arm. In grasping an object picks it up with the hand, not with the fingers; as the object is approached the fingers jerk in various directions, are separated from each other and extended in more or less orderly sequence. Some stiffness in the arm during these movements. Very similar motions are present in the foot and toes, and the leg is a little stiff. Knee-jerk in right leg exaggerated; no ankle clonus. Intelligence good.

In one case there were associated movements of the paralyzed arm on attempting motion with the other one. Allied to this, doubtless, is the not infrequent irregular jerking of the arm in the act of walking. Sometimes it is thrown in a curious way behind the back.

Aphasia. Speech was affected in thirteen cases, in five of which the children were under three years of age.

The following are illustrative cases:

Case I.—Cecilia P., æt. twelve years. H., 25. Healthy when born; one of seven; others healthy. Father has had hemiplegia for three months. When two years old awoke paralyzed on right side; became comatose and remained unconscious for two days. Lost power of speech for six weeks. Paralysis persisted for six months; the leg gradually improved. Rigidity came on in affected side a few months after the attack. Has had, at times during the past three years, loss of consciousness, with convulsive movements chiefly of right side. Has had two or three in a day but may not have any for a week or more. Has a characteristic hemiplegic gait. Leg is a little stiff; muscles somewhat wasted; one arm smaller than the other and flexed; the fingers also flexed and contracted.

Case XI.—Robert M., æt. thirteen years. H., 91. No injury at birth. One year ago sudden paralysis of the right side, which was preceded for a day by loss of power of speech. The face was also drawn. Had convulsions a few weeks after the hemiplegia, but not at the time. Began to walk eight weeks after the attack, and recovered speech about the same time. Arm has improved but little; is stiff. Convulsions at intervals. Is improving.

Case XXVIII.—Mathew C., æt. ten years. I. P.$_4$, 19. Good family history. Well until August, 1883, when present trouble began. Had vomiting, diarrhœa, great headache and photophobia, which lasted four days, and on the fourth day there was complete, right hemiplegia, including face, with aphasia. In a month the child began to get about; the aphasia was complete for one week, and then the power to walk gradually returned. Walks well but slowly and stiffly. Arm contracted. Right face is still smooth, and the dimple is gone.

Case LVIII.—Ellen McC., æt. six years. C. D. C., 177. Parents healthy. Healthy until three years of age. Then had a fit, lasting, with intervals, for nine days, and, at the end of that time, convulsive movements confined to right side; right hemiplegia followed, and also loss of speech. Gradually regained power of walking; has not yet regained power in arm. Began to speak in a year, and mental condition improved. Ever since first attack has had attacks of unconsciousness every day; jumps, falls to ground and immediately rises again, looking bewildered. No prolonged convulsion until ten days ago. During this time has had none of the lesser attacks. Has had as many as fifty to sixty of these "jumps." Injures herself much by the falls. During attacks, convulsive movements of left side of body and face, and she screams. Does not bite tongue; speech affected since second attack. *Status præsens*: Right arm smaller than left; contractions of flexors of forearm and wrist, not of her fingers. Right leg trifle shorter than left, and slight contraction of tendo Achillis.

Of these thirteen cases twelve were associated with right and one with left hemiplegia. The number affected is much smaller than in the collected series of Wallenberg,[1] whose statistics give forty-five cases of speech disturbance in ninety-four right hemiplegias and seventeen cases in sixty-six left hemiplegias. In Gaudard's[2] fifty-five right hemiplegias there were twenty-five cases of disturbance of speech, seventeen of which were true aphasia. There were eight left hemiplegias with aphasia. Bernhardt,[3] who has made a very careful study of this condition in children, says that in a majority of the cases of cerebral palsy, no matter on what side, there is affection of speech, usually transitory. In one case of our series the aphasia was associated with left hemiplegia. Usually the power of speech begins to return in a short time, but recovery may be deferred for a year (Case LVIII.) and in Case XVII., the child had not spoken six months after the lesion. In several instances recovery was incomplete.

In eight of the twenty-two cases at Elwyn, there is absence or profound disturbance of speech, but the patients are idiots or idio-imbeciles who have never acquired fully the power of speech.

Mental defects. A lesion so serious and extensive as that which is associated with infantile hemiplegia may seriously interfere with cerebral development, and, among the most common sequences, we find various anomalies of intelligence. In the Infirmary series only twelve cases presented idiocy or imbecility at the time of observation, but it must be remembered that the majority of the cases came to the Infirmary a short time

[1] Loc. cit.
[2] Loc. cit.
[3] Virchow's Archiv, Bd. 102.

after the onset of the paralysis, so that our records on this special point are by no means complete. In Gaudard's series—80 cases—there were 15 feeble-minded and 19 idiotic children, while in Wallenberg's cases (160) there were 50 with mental defects, and in 15 cases imbecility followed the epilepsy so often associated with this condition. Three grades may be distinguished: idiocy, which is most common when the hemiplegia has existed from birth, or has come on at an early period; imbecility, which may increase with the development and persistence of convulsions; and a feeble-minded, backward condition, a retarded rather than arrested mental development. The 23 patients at the Pennsylvania Institution for Feeble-minded Children may be classified as follows: Idiots, 4; idio-imbeciles, 2; low grade imbeciles, 5; middle grade imbeciles, 6; high grade imbeciles, 6.

In connection with the mental disturbance which so often follows infantile hemiplegia, Merklin[1] has called attention to the development, later in life, of psychoses, even in cases which, in youth, have not shown any abnormalities.

Epilepsy. One of the most common and distressing symptoms is the occurrence of convulsive seizures, usually confined to the paralyzed side, but tending to become general. This hemiplegic or post-hemiplegic epilepsy affects, sooner or later, a considerable proportion of the cases. In the Infirmary series of 97 cases there were only 20 instances. In Gaudard's list (80) there were 11 cases of hemi-epilepsy, and 66 in Wallenberg's series of 160 cases. At Elwyn of 23 cases, 15 had epilepsy.

The attacks begin a variable time after the onset of the hemiplegia, mostly within two or three years, though they may be deferred eight or ten years, or even longer. In some instances the paralyzed limbs are convulsed within a few weeks.

These seizures may be either (1) attacks in which the child is simply dazed for a moment or two, occasionally longer, without any motor involvement; (2) spasms beginning in and confined to the affected side, without loss of consciousness—the true Jacksonian epilepsy; (3) general convulsions which begin in the paralyzed limbs, and are usually accompanied by loss of consciousness. All three forms may occur in one case, but by far the most common and characteristic is the hemi-epilepsy with retention of consciousness.

The following illustrative cases will give an idea of these attacks:

Case XCVI.—Patient of Dr. Mitchell, at present in the house. The hemiplegia is left-sided, and dates from shortly after birth. As the child sits on the floor the eyes will suddenly become fixed, deviate strongly to the left, the head begins to nod (the so-called nodding epilepsy, E. nutans). The left arm, which is constantly stiff, may be more closely retracted, but often the fixing of the eyes and nodding motion of the head alone indicate that a fit is present. After a few moments the child wakes up with a start and resumes its play.

In *Case LXII.* the child, æt. two years, became hemiplegic (left) at the tenth month. When twenty months old she began to have spasmodic contractions of the left arm and leg, lasting for about five minutes, and occurring several times a day. The arm would be jerked up, the leg twitched, and the eyes became fixed. Just before they come on, she gets quiet, and, if nursing, drops the nipple. With cessation of the attack she draws a deep breath, and is then as bright as ever.

In the following case the lad had post-hemiplegic movements, as well as distinct convulsions, which sometimes become general:

Case LXVII.—Charles W., æt. thirteen years. H., 323. Was healthy as a baby. Birth natural. In August, 1881, had a "sick spell" from Wednesday to Friday. While dressing on Sunday, lost power entirely in left arm, leg and face. Was in bed two months. He slowly regained power of leg. Since then has had fits. *Status præsens:* Is fairly intelligent; has bent head; no scar on head. Characteristic hemiplegic gait; drags the left leg; left arm smaller than the right; it is wasted, and possesses very slight power of movement—chiefly flexion. Spastic rigidity of flexors of the wrist, so that the carpus cannot be extended. Often in the day, as many as ten or fifteen times, the arms will stretch out from the side, and the fingers will extend, first the little and then the others in order. Face muscles will also work. He has other sorts of attacks, in which the movements may begin as these, and be confined to the arm or extend to the entire side of the body. He never loses consciousness, and never sleeps after the attacks. Has as many as three or four in a day. He has headache, but not worse on one side. Knee-jerk exaggerated on left side.

Case XVIII.—Annie E., æt. ten years and six months, I. $P._1$, 157. Three other children. Was quite healthy until the sixth year, and was a very bright, intelligent child. Had a convulsion one night after exposure to intensely cold weather. The spasms were on the right side. They recurred at intervals for a year, always on the right side, and she gradually began to lose power on this side. When about nine years old the convulsions became general, but they began on the right side. They have become more numerous, and she has had as many as fifteen in a day, and even four or five in an hour. *Status præsens:* Dull, stupid-looking girl; marked spastic hemiplegia of the right side, arm and leg rigid. Fingers strongly flexed in the hand. Heart normal.

Morbid Anatomy. Although the clinical features of infantile hemiplegia are as well characterized as those of infantile spinal palsy, our knowledge of the pathological conditions on which the former depends is, in comparison, still very defective. As in hemiplegia of adults, the lesions are variable, and the symptoms may be produced by any destructive process in the cortico-spinal section of the motor tract. It is surprising how few are the observations made shortly after the onset of the paralysis. The great majority of the post-mortems have been made after the hemiplegia has lasted for months or years, when all trace of the primitive lesion has disappeared.

I have analyzed the records of ninety autopsies in cases of hemiplegia coming on in infancy or childhood. The majority of these are contained in the articles of Cotard,[1] McNutt,[2] Gaudard,[3] Richardiere[4] and Wuillamier,[5]

[1] St. Petersburger med. Wochenschrift, 1887.

[1] Cotard: De l'atrophie partielle du cerveau. Paris, 1868.

[2] Loc. cit. [3] Loc. cit.

[4] Etude sur les Sclerose encéphaliques primitive de l'enfance. Thèse de Paris, 1885.

[5] Loc cit.

but I have, as far as possible, referred to the original cases, and have been able to extend the list of the forty-eight autopsies analyzed in 1886 by Wallenberg. The right hemisphere was affected in 39 cases, and the left in 51. It is interesting, as bearing upon the prognosis, to note in seventy cases the ages at which death occurs: under two years, 4; between second and fifth year, 10; from fifth to tenth, 8; from tenth to twentieth, 18; from twentieth to thirtieth, 12; thirtieth to fortieth, 4; fortieth to fiftieth, 8; above fifty, 6. I have excluded all cases of hemiplegia coming on after the fifteenth year, and, in the great majority, the onset dated from convulsions in the early years of life.

The lesions may be conveniently grouped under three headings:

1. *Embolism, thrombosis and hemorrhage.* In this group, comprising sixteen cases, the patients did not long survive the attack, and a study of the conditions found post-mortem might be supposed to throw considerable light on the nature of the initial lesion. In the cases of Gibb,[1] Vernois and Valleix[2] the condition was congenital. The mother, in Gibb's case, had received a blow on the abdomen, and the child was stillborn, with rigidity of the limbs on the left side. There was a clot in the right hemisphere above the ventricle. In the cases of Vernois and Valleix the labor was difficult, and the paralysis existed from birth. The children lived for forty-nine days and three and a half months respectively, and, in both, extravasation existed in the neighborhood of the ganglia. In the cases of Wrany-Neureutter,[3] Taylor,[4] Callender,[5] Kelly Johnson,[6] Barlow,[7] there was heart disease, with embolism of the middle cerebral artery. A case of Henoch's[8] was also embolic. In two cases of Callender,[9] in one of Lewkowitsch, and in one of Reimer, there was hemorrhage. In a case of Abercrombie,[10] the right Sylvian artery was plugged by a firm thrombus. In Case XII. of a series of aneurisms of the larger cerebral arteries, which I reported from the Montreal General Hospital,[11] a boy of six years, with left hemiplegia, there was hemorrhage into the longitudinal fissure, and laceration of the median surface of the right hemisphere, caused by rupture of an aneurism of the right anterior cerebral artery. In a case of Dulles,[12] in a child of six months, there was hemorrhage into the ventricles.

Thus, of the sixteen cases, there was plugging of a Sylvian artery, usually embolic, in seven, and hemorrhages in nine. In striking contrast to the majority of the cases of infantile hemiplegia, is the significant fact that in this group the age at onset is high. Excluding the three congenital cases, there was only one child under three years, while ten were over six.

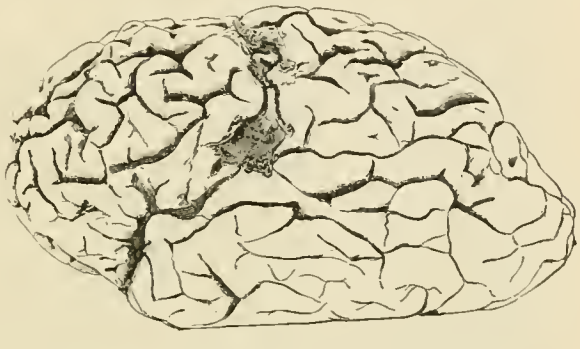
2. *Atrophy and sclerosis.* In fifty cases there was wasting with induration, either of groups of convolutions, an entire lobe, or, in some cases, the whole hemisphere was affected.

The following cases from the institution at Elwyn illustrate this condition in a typical manner:

Male, æt. sixteen years. Family history good. During measles when a child, he became paralyzed on the right side, and had aphasia. He regained partially the use of the leg, but did not recover speech. There was complete loss of power in the arm. He had repeated convulsions, in one of which he died. There was no sensory disturbance.

The only lesion found was in the left hemisphere. The brain was of full size, and looked natural; the membranes stripped off readily, except in the Rolandic region on the left side, where the pia mater was greatly thickened and adherent. As shown in the cut, Fig. 1, which is taken

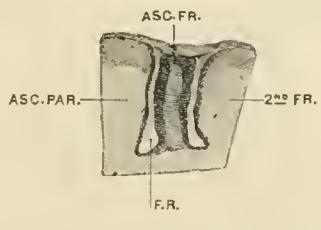
FIG. 1.



Left hemisphere, showing sclerosis in the Rolandic region.

from a photograph by Dr. Wilmarth, there is a depression in the neighborhood of the fissure of Rolando, and the fissure itself is not evident except at its upper third. So far as can be made out, the ascending frontal convolution in the greater part of its extent is atrophic, reaching to its lower end, but above there is at least half an inch unaffected. The central portion of the ascending parietal is also involved. From these regions the thickened membranes could not be removed without tearing the brain substance. The paracentral lobule, the third frontal and the insula did not appear to be affected. The cord, unfortunately, was not examined.

FIG. 2.



Section through the sclerosed area. *Asc. Fr.* Ascending frontal gyrus. *Asc. Par.* Ascending parietal. *2d. Fr.* Base of second frontal. *F. R.* Fissure of Rolando.

Sections across the sclerosed area, Fig. 2, show a complete atrophy of the ascending frontal gyrus and of the contiguous surfaces of the adjacent convolutions. The pia is thickened and closely adherent, particularly where

[1] Gibb: Lancet, 1858.
[2] Quoted by J. Lewis Smith. Diseases of Children, 4th edition.
[3] Quoted by Wallenberg, loc. cit.
[4] British Med. Journal, 1880.
[5] St. Bartholomew Hospital Reports, vol. v.
[6] Medical Times and Gazette, 1880.
[7] British Medical Journal, 1876.
[8] Vorlesungen über Kinderkrankheiten. Berlin, 1883.
[9] Loc. cit.
[10] British Med. Journal, 1887, i.
[11] Canada Med. and Surg. Journal, 1886. Trans. Path. Soc. Philadelphia, vol. xiii.
[12] Philada. Med. Times, vol. vi.

it dips down to the top of the wasted convolution. In the fissure of Rolando, a loosely arranged connective tissue, containing numerous bloodvessels, unites the opposed pial membranes. At the bottom of the fissure there is a wide sulcus, containing several large veins. In the shrunken ascending frontal convolution three layers of tissue can be readily distinguished, even with a low-power lens: (1) Beneath the pia is a narrow layer, resembling closely the normal first layer of the cortex, a granular matrix with a few nuclei arranged centrally, and, here and there, spaces, probably vascular. Bloodvessels pass through this part from the meninges. (2) A wider, more loosely arranged layer, with numerous nuclei and distinct fibres, among which are small arteries with thickened walls and dilated capillaries. In the deeper portion of the gyrus there are irregular spaces, some of which are large enough to be seen with the naked eye. (3) A central stem, composed of a close network of fibres, looking a little more condensed than the ordinary white matter, with scattered nuclei and a few bloodvessels.

The contiguous portions of the ascending parietal and second frontal convolution present essentially the same change. Although the entire gyrus is involved, the process is chiefly cortical and has resulted in the entire destruction of the gray matter.

I have recently had an opportunity of examining a second specimen at the Elwyn Institution with Dr. Wilmarth—a case of right hemiplegia with idiocy and epilepsy. The brain looked well formed; the meninges were normal. On the posterior part of the first left frontal, about three-quarters of an inch from the fissure of Rolando, there was a depression, over which the membranes appeared normal. The base of the first and the top of the ascending frontal gyrus had an opaque-white appearance, contrasting strongly with the surrounding tissue. On section this was seen to be an area of induration passing into the cerebral substance for at least an inch, and cutting with great resistance. A second opaque-white block existed in the hinder convolution of the quadrilateral lobe. On the left side there were two of these masses, one in the lower occipital convolution, and the other in the supramarginal. These masses were firm, opaque-white in color, the pia over them not thickened and the contour of the convolutions not destroyed. The examination of the brain has not yet been completed, but the blocks correspond to the description given by Bourneville and other French writers of the sclerose tuberuse.

To the French writers we owe much of our knowledge of cerebral sclerosis. Cazanvielh,[1] in 1827, described twelve cases under the term agénése cérébrale. Bourneville[2] has recorded a number of observations from the Bicêtre, while Cotard,[3] Jules Simon,[4] Richardière,[5] and Delhomme[6] have more recently written monographs upon the condition. In clinical features the great majority of the cases conform to the description of infantile hemiplegia.

The skull may be flattened on the affected side, and it is not uncommon to find it very broad and prominent above the mastoid processes. In several of the cases the bone on the affected side has been greatly thickened. The dura is usually closely adherent, and osseous plates have been found, which, in Bell's case,[1] were so extensive that the right hemisphere seemed enclosed in a second bony casing.

The arachnoid is turbid and thickened, and the amount of cerebro-spinal fluid excessive. The pia mater is often so thickened and adherent that, on removal, portions of the cortex come away, leaving a roughened surface, and in these cases the condition suggests a meningo-encephalitis. This localized thickening and adhesion of the pia to the sclerosed convolutions is well illustrated in the specimen just described.

The sclerosis is usually diffuse and involves either an entire hemisphere or a single lobe, or it may be confined to one or two convolutions. In a few cases it has been in patches—insular. Nodular projection of sclerosed tissue (sclerose hypertrophique) may occur over the surface. The affected convolutions are small, of a grayish or gray-yellow color, often with a stippled, pitted surface, to which the pia adheres firmly. In contrast with the neighboring normal gyri, the appearance is very striking and characteristic. The reduction in size of the affected hemisphere may amount to a third of the bulk. In one case the atrophied hemisphere weighed 260 grains, the normal 1007 grains. The tissue may be a mere shell over a dilated lateral ventricle, as in the cases of Baud[2] and Piorry. In many cases anfractuosities and small cysts have been found in and about the sclerosed tissue. Some of these cysts are evidently the result of old hemorrhages, as hæmatoidin crystals have been found in the walls. This is particularly the case with cysts in the neighborhood of the basal ganglia. In all of the fifty cases the Rolandic area was involved to a greater or less degree, in some cases affected alone, as in the brain figured; in others, involved in a widespread process. Undoubtedly the motor region, the area of the cortical distribution of the middle cerebral arteries, is most often affected, but this is not always the case.

Thus it is interesting to note the distribution of the lesions in ten specimens of sclerosis of the brain in the Museum of the Elwyn Institution.

I. R. H. Superior parietal lobule, patch ½ x ¾ inch, depressed meninges adherent.

II. R. H. First and second frontal. Occipital. L. H. Occipital lobe almost destroyed. Superior parietal, posterior half. Anterior two-thirds. First frontal, second frontal, slightly.

III. R. H. Cuneus. First frontal, extensive; gyrus fornicatus. L. H. Gyrus hippocampus, lingual, and occipital. First frontal slightly.

IV. R. H. Occipital lobe, outer aspect; supra-marginal; occipital end of first and second temporals; cuneus slightly. L. H. Temporal lobe, leaving the first untouched; supra-marginal and the entire angular group.

V. L. H. Gyrus fornicatus almost destroyed. Cyst on the middle of first frontal. R. H. Insula smooth; gyri not evident. Posterior half of first temporal; Sylvian ends of both central gyri. Middle portion of first and second frontal and posterior part of third frontal; gyrus fornicatus.

[1] Archives générales de Méd., 1827.
[2] Archives de Neurologie, tomes 1–5.
[3] Loc. cit.
[4] Revue men. des Maladies des enfants, 1883 and 1884.
[5] Loc. cit.
[6] Contribution a l'étude de l'atrophie cérébrale infantile. Thèse de Paris, 1882.

[1] Archives Générales, 1831.
[2] Quoted by Gaudard.

VI. L. H. Normal. R. H. Supra-marginal and angular gyri, encroaching on occipital; posterior third of first, second and third frontal.

VII. Blocks of induration. Sclerose tubereuse scattered over both hemispheres.

VIII. L. H. Normal. R. H. Temporal, parietal and occipital convolutions uniformly sclerosed; not a normal looking gyrus in any of these lobes. Frontal lobe quite natural looking; occupies more than three-fourths of the hemisphere. Patient was an epileptic; no paralysis.

IX. The case given in full. R. H. Normal. L. H. Sclerosis of ascending frontal and part of ascending parietal.

X. R. H. Nodular sclerosis, first frontal and base of ascending frontal. Patch on posterior gyrus of quadrilateral lobe. L. H. Patch on lower occipital, second on supra-marginal gyrus.

Dilatation of the lateral ventricle on the affected side is frequently mentioned; the basal ganglia may be flattened. In all the recently reported cases a descending degeneration of the pyramidal tract is described. In the cases of extensive atrophy of one hemisphere the opposite hemisphere of the cerebellum has been found smaller. The condition of the vessels has not attracted sufficient attention. In two cases Jendrássik and Marie found important changes in the walls of the cortical arteries to which we shall again refer.

3. *Porencephalus.* Associated as this condition invariably is with atrophy, of which it is indeed only a final result, to consider it separately is not strictly correct, and yet precision may well yield to the manifest convenience of grouping together for analysis the cases which present this lesion. Porencephalus represents a loss of substance in the form of cavities or cysts, situated at the surface of the brain, either opening into or bounded by the arachnoid, and often passing deeply into the hemisphere, reaching even to the ventricle. It was present in twenty-four of the ninety autopsies in hemiplegia. In eighteen of these cases the onset of the paralysis was noted. In six it was congenital. In eleven the hemiplegia came on in very early life after convulsions. In one it appeared to be the result of a fall at the age of two years. In six of the cases death occurred before the tenth year; in five between the tenth and twentieth year; in five between the twentieth and thirtieth, and in eight after this age. The extent of the defect was very variable, from a few convolutions to half a hemisphere. In all of the cases the motor region was involved to a greater or less extent. Although occurring in other parts of the brain in the great majority of cases the districts supplied by the middle cerebral arteries are affected. It is worthy of note that this condition usually corresponds with definite areas of vascular distribution.

DIAGNOSIS.—The more frequent onset with convulsions, the hemiplegic character of the palsy, the absence of rapid wasting of the affected muscles and the retention of electrical reactions are features of the early stage of the disease sufficiently well characterized to exclude, in most cases, infantile spinal paralysis. The rigidity of the muscles, the increase in the reflexes, the gait, the distribution of the residual palsy, the impaired intellect, and the frequent onset of convulsions clearly characterize the later stages.

There are cases, however, which present difficulties, owing to irregular distribution of the paralysis. Thus the following case of spastic crural monoplegia is probably, from its character, of cerebral origin.

Case XXV.—James H., æt. five months. I. P., 125. Healthy when born and until two and a half years old, when, for two weeks, he had fever, which was preceded by screaming spells. He seems to have pain in the right leg, and the back seemed painful and stiff. Then rigidity appeared in the left leg. During the attack he was delirious. The arms were never affected. There was no loss of sensation at any time. The condition is now confined to the left leg. The foot can neither be flexed nor extended, and is shorter than the right. Cannot lift the thigh. Can flex the leg slightly. Cannot stand on left leg. There is a difference of one and three-quarters inches in circumference of the legs, and of one and a half inches in that of the thighs. The reflexes are increased.

In the following case there was, at first, right hemiplegia, with the involvement, also, of the left arm, a distribution suggestive of spinal palsy, but the history clearly shows that the origin was cerebral.

Case XXVI.—Mary J., æt. two years and a half. H., 345. The second of three children; others well. Family history good. Mother fell three days before confinement, and was delivered of the child prematurely at eighth month. Birth normal. About May 30th, when two years old, was peevish and whining for a time, and then had convulsions, in which the mouth and face were twisted to the left, and she moved hands and arms. Both arms were paralyzed; and the right leg, after the attack. It was five weeks before she began to use the left hand, and she has never regained power in the right. She began to use the right foot in about two months. *Status præsens:* Cannot walk, but slides along on her buttocks. Mind is deficient; cannot talk; but understands what is said to her. Cranium microcephalic; biparietal diameter, 4.5 inches; occipito-frontal, 6; circumference, 17½. Slight internal squint. Rigidity of right leg at knee. Right hand is clenched, fingers extended with difficulty; hand seems slightly smaller than the left; no difference in forearms. Right hand gets cold and blue at times.

At the Elwyn Institution there is a remarkable case which must be regarded, I think, as one of post-hemiplegic epilepsy. All trace of the hemiplegia has disappeared, but there remain slight wasting, increase of the patellar reflex and occasional attacks of Jacksonian epilepsy, to indicate the nature of the original trouble. As the fits became general, and were aggravated at each menstrual period, oöphorectomy was performed, with relief at first; but, as might be expected, they have returned.

Case XXVII. (Elwyn series).—Annie S., æt. twenty-three years. Inmate of institution for one year. Mother in an insane asylum. When between three and four years old, fell and, for a long time after, could not walk; weakness of the left side. In one history of this case it is stated that the paralysis came on after scarlet fever. Had spasms at the age of twelve. Always began in arm, and for a long time were in the arm alone. Had the spasms worse at menstrual period, usually three or four, either just before or just after the period. Oöphorectomy was performed two years ago, February, 1886. Better for a year. Is a well nourished girl; gives a good account of herself. Left arm is smaller than right. Left

forearm, 9 inches; right, 9½. Wrist: left, 6½, and right, 7. No spasm, no rigidity; movements perfect. Left leg smaller than right. Calf, 12⅞. Right calf, 14⅜. Foot; length: left, 8½; right, 9. Left knee-jerk —. No ankle clonus; no heart lesion. Every time the fit begins in the left arm, the fingers are drawn up and the arm gets stiff. She has then to lie down on the sofa, and they become general; sleeps after them; has often vomiting. Has not had an attack since February, 1888. At first, while in the institution, they recurred for a number of months with regularity.

In certain *cases of cerebral tumor* the symptoms are those of spastic hemiplegia. Seeligmüller[1] records such an instance of tubercle of the meninges, beginning with convulsions and fever, with left hemiplegia and contractures in hand and foot; and I have described a case of glioma[2] in a girl of thirteen years, in whom spastic hemiplegia had lasted for some years, and who had Jacksonian epilepsy.

Paralysis of the face and of the upper extremity may result from the application of the forceps; the latter more commonly from the manipulations of the accoucheur. These *obstetrical paralyses*, as Duchenne[3] called them, could rarely be confounded with those due to cerebral causes. They are fully considered by Nadaud,[4] and Budin[5] has recently given an excellent description of the brachial palsy.

PROGNOSIS.—Parents are naturally intensely anxious as to the prospects of a child attacked with hemiplegia. As a rule, the younger the subject the greater the liability to serious and permanent damage. The nature of the lesion doubtless has an important influence, vascular obstruction more favorable than meningo-encephalitis, and the latter than tumor, but the diagnosis of the exact condition is by no means always easy. Of the bodily defect, about which the greatest uneasiness is displayed, we can almost invariably predict great improvement, particularly of the leg. Perfect recovery of the arm is rare, of the face more frequent. The development of post-hemiplegic movements is a bad omen, as such cases are more likely to have epilepsy, which constitutes one of the most serious sequences of the disease. Not only are the attacks dangerous in themselves, but they undoubtedly tend to aggravate existing mental defects. They may not develop for some years after the onset of the paralysis and may be deferred till the period of puberty. More distressing still to the relatives is the enfeebled mental state which so often follows infantile hemiplegia. As the records of the Pennsylvania Institution for Feeble-minded Children at Elwyn show, the percentage of the cases due to this cause is by no means small. Training does much for them, but for too many the outlook is not hopeful, and, as Merklin states, even when in childhood they escape imbecility, they are very liable in adult life to become the subjects of psychoses. *Quoad* life the prognosis is good, as shown in the post-mortem reports of ninety cases, in a large proportion of which the age at death was over twenty years.

[1] Jahrbuch für Kinderheilkunde, Bd. xiii.
[2] American Journal of the Med. Sciences, 1885.
[3] Traité de l'electrization localisée, 3d edition.
[4] Des Paralysies Obstétricales des Nouveau-nès. Paris, 1872.
[5] Le Bulletin Médical, No. 20, 1888.

ORIGINAL ARTICLES.

A CASE OF EXTRAUTERINE PREGNANCY; EMBRYO DESTROYED BY A 20 MILLIAMPERE CURRENT WITHOUT INTERRUPTIONS;

Together with Remarks on the Best Manner of Using Electricity for this Purpose.[1]

BY A. H. BUCKMASTER, M.D.,
OF BROOKLYN.

ON the 16th of February, 1888, Dr. A. J. C. Skene requested me to see Mrs. C., for the purpose of destroying an embryo that was developing outside of the uterus.

The patient was an Englishwoman, twenty-nine years of age, and gave me the following history: She had been married four years; had one miscarriage two years ago, and has a child three years of age. Her menstrual periods recur regularly, and have always been plentiful. She was troubled with dysmenorrhœa previous to her marriage, but since then has been free from pain.

Last October the patient changed her residence, and menstruated the latter part of that month. She did not menstruate the following month (November), and thought she was pregnant. She had never passed over a period except when *enceinte*, and was much troubled with nausea and bladder irritation, symptoms she had experienced previously only when bearing child.

On the 26th of December (the day on which the Christmas feast was held), while assisting in the preparation of the dinner, she had what she described as a "very queer turn." She said: "I never felt better in my life than I had that morning." A short time before dinner she became nauseated and went to the bath-room to vomit. She suddenly felt a violent pain in the "pit of the stomach," heard a ringing noise in the ears and fainted. She lay on the floor groaning and did not have strength enough to call loudly for assistance. She was found in this condition by her husband and removed to her bed. It is said that her face was very pale, and she fainted at each attempt to sit up. She was very thirsty, and "thought the doctor cruel" in that he did not permit her to drink all the water she desired.

Dr. Francis W. Bowron, the family physician, was sent for, and from him I obtained the following history:

"On December 26th I was summoned in great haste to Mrs. C., who was reported to be dying. I found her in a condition of collapse, pulseless at the wrist, the lips bloodless and the face pale and ghastly in expression. The heart was irregular and intermittent, and there was great pain in the abdomen. She was treated as a case of internal hemorrhage and in the evening rallied. The next day the symptoms of pain and shock recurred, and on the 28th there was again an attack, but of much less

[1] Read before the New York Academy of Medicine, Section on Obstetrics and Gynecology, May 24, 1888.

severity than before. On the 12th of January there was a recurrence of these fainting spells, also on the 13th and 14th of January. Dr. Skene saw the patient, who had been rapidly increasing in size, on the 14th of February, and made the diagnosis of extrauterine pregnancy. He recommended that Dr. Buckmaster be called in to use the electric current for the destruction of the fœtus. The increase in size of the patient's abdomen was arrested after the first treatment by Dr. Buckmaster. The patient is now her natural size and in fair health."

The following notes were obtained from Dr. Skene:

"I saw Mrs C., in consultation with Dr. Bowron, on the 14th of February. I found the lower part of the abdomen enlarged. The right iliac region was the most prominent, and there was slight tenderness on touch. Dulness on percussion from the right ilium across the lower part of the abdomen and upward to somewhat more than half the distance to the umbilicus. On the left side the dulness did not extend upward more than two inches. An ill-defined mass, elastic to the touch, was distinctly traceable on the right side. Vaginal examination showed that the uterus was crowded forward toward the pubes, and that it was somewhat enlarged and softened. The sac of Douglas was occupied by an elastic mass, in which fluctuation could be detected, and which felt not unlike a small ovarian cyst, and seemed to be part of the tumor felt in the right iliac region, from which the uterus appeared free.

"The diagnosis was between an ovarian cyst fixed on the right side and an extrauterine pregnancy. Taking the physical signs with the clinical symptoms a diagnosis of the latter condition was made. The general impression left on the mind of the examiner was that, without doubt, it was a case of extrauterine pregnancy."

I saw the case with Dr. Bowron on the 16th of February, and found the conditions as just described by Dr. Skene. The patient stated that she had progressively increased in size during the past three weeks.

After carefully considering the different methods for destroying the fœtus, none of which seemed altogether satisfactory, I determined to use the galvanic current without interruptions, for reasons that will be stated later.

The current[1] was gradually increased by means of a rheostat until a strength of 20 milliampères was reached—no attempt to go further than this was made, as the patient felt some pain. After maintaining the current for ten minutes it was gradually decreased. The patient experienced no shock. For the abdominal electrode was used a large *plaque* of clay with sixty-four square inches of contact; the vaginal electrode was of steel covered with wet absorbent cotton. I was careful to press down on the abdominal electrode as much as the patient could bear, and also to raise the electrode in the vagina so that the current could be in as intimate relation to the fœtus as possible. I regard this as important, because the fluid about the fœtus offers so much resistance to the passage of the current. At the end of the *séance* the patient declared herself much relieved from the pelvic pain that had greatly annoyed her. I attributed this relief to the sedative influence of the positive pole. I had used the positive pole in the vagina anticipating this result.

Six days after the first treatment the patient was again seen and her physical condition found to be much improved. The appetite had returned and the abdominal circumference had markedly decreased. Both the patient and her friends were delighted with the result. The physical examination was very satisfactory. The cyst seemed to have lost much of its fluid contents. I felt quite sure that the child was dead, but as the thorough examination started up the old pelvic pain, I made another electrical application. The third, and, subsequently, three more applications were made for the relief of this pain, at intervals of about six days. None proved so efficacious as the first.

At the third treatment the measurement around the abdomen had increased about an inch, and six days later was half an inch more, but after this, the circumference measurement steadily decreased. Toward the end of February and also at the end of March, the patient menstruated.

The patient was seen three months after the first treatment and was in very good health. A hard mass can still be felt by making a vaginal examination, and there is a slight tenderness about it.

The questions which would naturally suggest themselves with this and other cases of this kind are:

1st. *Was the diagnosis of extrauterine pregnancy warrantable?*

We had the subjective symptoms of pregnancy already enumerated: nausea and irritable bladder, and these symptoms were of special significance because they had existed with the previous pregnancy and at no other time. Coupled with the cessation of the menstruation, the diagnosis of pregnancy would be highly probable. The uterus, although somewhat enlarged, did not correspond in size or condition of the cervix with the pregnant uterus of this period. It was pushed forward, and the fundus could be felt above the pubes. In the sac of Douglas was a large fluctuating mass rapidly increasing in size. About the time the second period was due the patient suffered from cramp-like pains followed by signs of internal hemorrhage.

From the foregoing facts the case is about as clear as possible, except that there is no definite statement as to the casting off of the decidua, but we know it is often impossible to utilize this sign.

2d. *Was the child living when the electricity was first applied?*

The rapid increase in size observed by the doctor and the patient during the latter part of January and

[1] A fifty cell chloride of silver battery, made by Mr. Barret, was used.

during February, after the symptoms of a peritonitis had subsided, indicated, by exclusion, a living ovum. Conversely we supposed the death of the ovum from the fact that the tumor decreased in size immediately after the treatment. It not only decreased in size but changed in character, losing its elastic feeling on account of the absorption of the fluid contents. It has been claimed recently that the placenta continues to grow after the death of the fœtus, but as we have seen no corroborative evidence, it is not worth consideration at present.

3d. *Is the uninterrupted current the best means for destroying the fœtus?*

I shall say but little as to the advisability of the use of electricity. So many eminent Americans have advocated its employment, that it has justly become known as the American plan of treatment. Although an Italian, Bachetto, first used the current for the destruction of the fœtus, he used it in connection with puncture, a procedure which indicates that he had no conception of the advantages of this potent agent. So, as Dr. Garrigues very justly remarks, the honor of priority may be justly claimed by America. Dr. T. G. Thomas, whose experience has been very large, says, in his characteristically forcible manner, "It has these great advantages: if an error of diagnosis has been made, this remedy will do no harm; if the diagnosis be correct, experience proves it to be sufficient in its effect; . . . and it requires no surgical skill in its use."[1] Many cases will undoubtedly appear as the literature of the subject expands, in which, after cutting into the abdomen, it will be found impossible to complete the operation.[2]

Three methods are in use for the destruction of the ovum by electricity.[3] In the *first* method we may mention the use of the primary or secondary current of the ordinary faradic machine. This method is the one that has been most commonly used. For the *second* method we use a galvanic current of from ten to sixty milliampères with interruptions; and in the *third* class we consider the use of the galvanic current of effective intensity without interruptions, and increased or diminished gradually.[4]

The first method depends for its effectiveness on the shocks produced by the rapid breaking of the current by the magnet. The current strength is insignificant, and is usually obtained from two cells. Landis[1] applied the poles of a Flemming faradic battery against the shoulder and opposite rump of a newborn rabbit, and then used the full force of the battery for five minutes, and yet the rabbit recovered. A newborn rabbit is killed by very slight violence, and it would appear from this and other experiments, which he made on minnows and beetles, that embryonic life is not so easily destroyed by this agent as one might imagine.

This idea will be confirmed in reading the very interesting history of a case of extrauterine pregnancy by Dr. Ely Van De Walker.[2] He used a powerful induction coil. He says:

"The irritation from one induction coil was such that it could not be tolerated elsewhere about the body for a moment . . . . . She had ten *seances* of half an hour duration each, on the same number of consecutive days . . . . . On the pelvic mass there was no evidence that I had made any impression whatever. Its size remained the same, and its resistance to the touch, or what I would prefer to term tension, was unchanged." He determined to prolong the treatment to an hour. "We did so for three successive days, using the full strength of the induction coil. On the third day we found evidence that the electricity was accomplishing its work."

The danger of producing rupture of an already weakened tube has been pointed out, but some of the recent writers are disposed to belittle this risk because we have no deaths directly traceable to it as a cause. We have had as yet too few cases reported to draw any such deduction, and the dangers of a possible rupture offer to my mind a valid objection against the use of the faradic current.

By the second method, in which a comparatively strong galvanic current is used, the advantages of the first method are rendered greater, and the danger of rupture is also increased. This is so true that I doubt if the second method is justifiable with our present knowledge of the subject. Dr. A. J. McCosh, speaking of a case treated by this method some time ago, says: "The contraction of the legs and abdomen was very energetic when the current was interrupted."[3]

On February 15, 1887, at a meeting of the Obstetrical Society of New York, Dr. Paul F. Mundé remarked that he had reported a case two years before in which one pole was introduced into the rectum, and twenty four cells were used with interrupted shocks; the fœtus was killed, but the patient received such a severe shock that she was collapsed, and was restored only after receiving repeated hypodermatics of brandy, ether, etc.[4]

We use the third method precisely as we use the galvanic current for the destruction of a fibroid

[1] Trans. Amer. Gyn. Soc., vol. lx.

[2] See autopsy by T. G. Thomas, Trans. Amer. Gyn. Soc., vol. viii. p. 167.

[3] The use of the static form of electricity is not considered because of the difficulties in the way of its application.

[4] At the meeting of the Section before which this paper was read the writer stated that he believed his case was the first one in which the current had been applied in the manner above mentioned. He finds, however, that in Dr. Janvrin's case, which antedates his, it was so applied at Dr. Rockwell's suggestion.

[1] Landis: Amer. Journ. of the Med. Sciences, October, 1885.

[2] Trans. Amer. Gynecolog. Assoc., vol. xii. p. 296.

[3] Trans. Amer. Gynecolog. Assoc., vol. ix. p. 173.

[4] Amer. Journ. of Obstet., April, 1887.

tumor. That a current of twenty milliampères strength has a profound effect upon the cellular structure is shown by experiments that I made upon the heart of a living dog,[1] in which it was observed that the striæ of the heart's muscle became granular and indistinct. I speak of this to indicate with what a potent agent we are dealing, and also it gives us a reason to understand how the current is effective.

In the case reported by the writer, twenty milliampères of current apparently caused the death of the embryo; but if this amount of current should prove for any reason inefficient, or if instant results are desired, it may be increased up to 100 or 150 milliampères if necessary, when there could be no doubt of the result being attained. Sixty to eighty milliampères are often borne without discomfort by the patient without an anæsthetic. The fluid about the embryo offers so much resistance that the electrodes should be brought as near the child as possible, and to accomplish this the abdominal electrode should be pressed down and the vaginal electrode raised under the mass.

The writer has not considered the question of the use of electricity in connection with puncture of the sac, because he believes, from the experience of reported cases, that this procedure is more dangerous than laparotomy.

To recapitulate in regard to the three methods of using electricity for the destruction of the fœtus:

1. The faradic current is not certain in its action and not without danger. It must be used a number of times and for prolonged *seances*.

2. The interrupted galvanic current is more effective than the faradic and by far the most dangerous of the three. It should never be used, because the other methods will accomplish all that is claimed for it, and it is in itself exceedingly dangerous.

3. The uninterrupted galvanic current will accomplish at once the death of the fœtus; it will relieve the intense pelvic pain by the sedative influence of the positive pole placed in the vagina; *it is without danger*.

In the application of this method, all that is necessary is any electric battery containing enough cells, connecting cords, a rheostat and a vaginal and an abdominal electrode.

The battery used by the writer was the fifty cell chloride of silver battery made by Mr. John A. Barrett. It weighs but eleven pounds and is 11x7x6 inches, so that it can be easily transported. Mr. Barrett has also invented a dry rheostat which can be carried in the pocket and which will prove very satisfactory if the current strength desired is not greater than seventy-five milliampères.

The abdominal electrode consists of two parts, a plate of copper and under it a pad of ordinary cotton batting, two inches thick when dry. The latter should be applied so wet that the water drips from it. The copper plate may be procured from a plumber at the cost of a few cents, and cut with tinners' shears to the shape desired. A hole should be punched through it, and then by means of a piece of copper wire it can be fastened to the connecting cord. For the vaginal electrode almost any of those in the market, covered with a layer of wet cotton, will answer the purpose, and if they are large enough there need be no fear of cauterizing the vagina.

The following rules for the application of the electricity may be followed with advantage:

1st. Use the positive pole for the vaginal electrode.

2d. The electrodes being in place and the connections secure, permit the current to increase in strength gradually, by means of the rheostat, until the patient complains of pain.

3d Press up the vaginal electrode and downward on the abdominal electrode, as much as the patient can bear.

4th. If the immediate destruction of the fœtus is imperative and the patient cannot bear more than twenty milliampères, use an anæsthetic and pass a 100 milliampère current.

5th. Decrease the current gradually at the expiration of fifteen minutes.

[1] Prize Essay read before the Alumni Association of the Long Island Hospital Medical College, 1888.

REPORT OF A CASE OF SEVERE HEMORRHAGE FROM THE STOMACH.

BY VICTOR C. VAUGHAN, M.D.,
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THE following case presents some features which are probably worthy of record:

April 28, 1888, about 6 P.M., I was called to see Mrs. S., the wife of a brother physician. I found that she had not been feeling well during the day, had excused herself from the supper table, and had walked into the hall, when she fell and began to vomit blood. A small quantity of the blood was thrown upon the floor, but the greater portion was received in a bowl, and this measured one pint. I found the patient very weak and faint, and I immediately injected into the arm twenty minims of Wyeth's fluid extract of ergot, and applied ice over the stomach. As soon as she was able to swallow, we gave her small bits of ice.

For nearly an hour she seemed fairly comfortable; then she began to complain of a sensation of fulness in the stomach, and soon blood poured from the mouth and nose. All of this hemorrhage was caught in a bowl, and it measured a full quart. It was bright red in color and clotted in the bowl. The reaction of the blood was not ascertained. The injection of ergot was repeated, the dose being in-

creased to thirty minims. The application of ice over the stomach was made interruptedly, with the hope of securing the full effect of cold upon the contractility of the bloodvessels.

Although the patient remained unconscious for some time after this hemorrhage, there were occasional attempts at vomiting, and after about thirty minutes a third vomiting of blood occurred. The amount of blood thrown up at this time could not be accurately determined, as it was received in a bowl containing water. This time the blood was dark and clotted, and from this we inferred that there had been no fresh hemorrhage, and that the blood now emitted had been poured into the stomach along with that which had been previously vomited. After a few minutes the patient regained consciousness, but she could not be moved in the slightest manner without becoming faint, and it was only after three days that her clothing could be removed, and fully two weeks passed before she could open her eyes without having the sensation of fainting. We did not dare to give stimulants to any extent for fear of raising arterial pressure, and thus causing a renewal of the hemorrhage.

The question of nourishing our patient now became a very important one. Feeding by the bowel was thought of, but the idea was dismissed on account of the existence of painful hemorrhoids. Indeed, it was found some days later that an attempt to wash out the lower bowel was followed by violent and painful spasmodic contraction of the sphincter ani, which placed the patient in an alarming position, and at another time an attempt to introduce a suppository was followed by similar symptoms.

After consultation, we determined to try some artificially digested food. A peptone was first tried, but its disagreeable taste caused nausea, and threatened to produce vomiting, which might have proved disastrous. Having used the beef peptonoids of Reed & Carnrick successfully in the treatment of cholera infantum, I determined to try it in this case. It was not objectionable to the taste and did not distress the stomach. For three days our patient was given no other food: then some of Carnrick's soluble food was added, and these preparations constituted the sole diet for three weeks. No medicine was given at any time, save a few drops of the fluid extract of cannabis indica, a few evenings, as a cerebral stimulant, in order to relieve the anæmic headache, which gave trouble, and to induce sleep. This medicine acted very pleasantly. Past experience with the patient in other forms of illness led us to abstain from the use of morphine, which had proven likely to cause nausea and vomiting.

The source of the hemorrhage in this case is of interest. Some eight years ago the patient had experienced a similar, but much slighter, hemorrhage. It was suggested at that time that the hemorrhage might be vicarious, as she had failed to menstruate, but in the present instance the physiological hemorrhage had been normal for some years, a period having preceded this hemorrhage from the stomach about ten days, and it may be stated here that there have been two normal periods of menstruation since the attack.

Although the patient's digestive organs have not been in the most vigorous condition, she had not before the attack complained of any special pain in the stomach, and she had during the year done full work as a teacher, besides considerable original work and writing. That she has a cirrhosed liver I think there can be no doubt, and I think that portal congestion, probably long continued, has had a large share in the causation of the hemorrhage from the stomach. However, the large amount of blood, and its bright red color, caused me to believe in the existence of an ulcer in the stomach. We know that such ulcers may exist without causing much distress.

THE INJECTION OF A SOLUTION OF COCAINE INTO THE URETHRA FOLLOWED BY DEATH.[1]

By J. HENRY C. SIMES, M.D.
SURGEON TO THE EPISCOPAL HOSPITAL OF PHILADELPHIA

A. M. was admitted into the surgical ward of the Episcopal Hospital on February 23, 1888. Age, twenty-nine years. English. He gave a history of having suffered from stricture of the urethra some years before, for which the operation of external urethrotomy had evidently been performed. At the time of admission there was some difficulty in passing water, and the urine, he said, "comes out of an opening between the legs." Upon examination there was found the cicatrix of a perineal section, having a small fistula communicating with the urethra. The urethra was examined, and the existence of a stricture was ascertained, situated about four and a half inches from the meatus. The stricture admitted a No. 11 French bougie.

Gradual dilatation, by means of sounds introduced every other day, was the treatment under which the patient was placed for two weeks. Favorable progress was made, and the the urethra now easily admitted a No. 20 sound. Internal urethrotomy was determined upon, in order to remove all hindrance to the passage of urine through the urethra, and permit the healing of the perineal fistula. On March 3d, the day I had intended to perform the operation, the patient complained of sore throat, had a slight chill, and there was a slight increase of temperature. This proved to be nothing more than a mild attack of bronchitis. On March 9th, he was feeling quite well, and I had him removed to the operating-room for operation.

Previously to performing internal urethrotomy, I have, for the past year or two, injected into the urethra a solution of muriate of cocaine, which has lessened the pain of the operation, although not

[1] Read before the Philadelphia Academy of Surgery, June 4, 1888.

completely rendering the parts insensible to the cutting. The strength of the solution used in my previous cases had been five per cent.

The man was placed upon the operating-table, one drachm of a twenty per cent. solution of muriate of cocaine was introduced into his urethra, by means of a long-nozzled urethral syringe which passed about four inches into the canal. The instrument had scarcely been taken out of the urethra when the patient made a foolish remark, the muscles of his face began to twitch, the eyes staring, pupils dilated, frothing at the mouth, face much congested, respiration interfered with, and ending in a violent epileptiform convulsion, lasting for some seconds. These convulsions were continued with increasing violence, several times a minute, the whole muscular system taking part in the spasms, requiring considerable force to keep him from falling off the table. The action of the heart was not much interfered with, and appeared only to be secondarily affected. It was the respiratory function that seemed first to fail, and then the heart's action became irregular and slow. The breathing was gradually more and more interfered with, the face—in fact, the entire surface of the body—became deeply cyanosed, the pulse slow, and at the end of twenty minutes from the first convulsion had ceased to beat. The man was dead.

The means employed to relieve the patient were all useless; nothing had any effect in controlling, lessening or in any way influencing the ultimate result, and I may say everything was promptly and efficiently done; the entire staff of resident physicians of the Hospital ably assisted me in my efforts, which unfortunately were futile.

The *post-mortem* was made by Dr. Grimm, Resident Surgeon at the Hospital. *Thorax*: Lungs normal, but much congested; heart normal, right side empty, left side filled with currant-jelly clots. *Abdomen*: Liver much congested; spleen presented on its surface several stellate cicatrices; kidneys much congested and also cicatrices similar to those seen on the surface of the spleen; they were thought possibly to be syphilitic in nature. The *urethra* was examined to ascertain if there had been a rupture made in introducing the syringe, but no such lesion was found. The *brain* showed the bloodvessels very much congested; its membranes on either side of the longitudinal sinus at the vertex, covering a space of two square inches, were thickened and closely attached to the brain-substance; this probably was the result of some previous inflammatory action.

The cases of poisoning by cocaine have been very thoroughly searched for and published by Dr. J. B. Mattison, of Brooklyn, in two papers, "Cocaine Dosage and Cocaine Addiction," February 15, 1887, and "Cocaine Toxæmia," January 15, 1888. In the first paper are reported four fatal cases due to this drug, and in the latter two more cases that resulted fatally. The cases in which symptoms of cocaine poisoning occurred with more or less severity, but not fatally, numbered in Dr. Mattison's first article over fifty and in his second paper over forty.

MEDICAL PROGRESS.

The Treatment of Migrainous Headache.—Dr. James Little, before the Royal Academy of Medicine, read a paper on migrainous headache. He said he was in the habit of directing the patient, when he awoke with any feeling of headache, to take twenty grains of the salicylate of sodium in a wineglassful of water, made effervescent by the addition of a dessertspoonful of the granular citrate of caffeine, and, if necessary, to take a second or even a third dose at intervals of two hours. The effervescing caffeine made the dose a very palatable one, which the salicylate alone was not, and probably rendered it more useful; but that the good effect was not due to the caffeine was proved by the fact that the author had seen it relieve persons who had previously used the caffeine alone without benefit. It did not appear to lose its effect, as a patient, to whom Dr. Little gave it more than two years ago, said she found it as valuable as when she first began its use.—*British Medical Journal*, June 9, 1888.

Resorcin in Laryngeal Tuberculosis.—Dr. Frohnstein of Moscow (in the *Rossk. Med.*), states that resorcin is an excellent means for the relief of the discomfort and pain of tubercular ulceration of the larynx. He applies a ten to twenty per cent. solution with a brush, and directs, besides, the inhalation of a two per cent. solution several times daily. He prefers resorcin to cocaine.—*Centralblatt für die Gesammte Therapie*, June, 1888.

The Physiological Actions of Strophanthin.—A series of experiments on curarized dogs, conducted by Popper, of Vienna, in the laboratory of von Basch, in which the action of strophanthin (Merck's) upon the arterial pressure, the pressure in the veins and in the pulmonary artery, and with reference to the relation of the heart to its nerves was investigated, led to the following conclusions:

1. The arterial pressure is raised. This is mostly to be referred to a change in the heart's work, for:

2. It occurs if the splanchnic nerves or the spinal cord, at the level of the first cervical vertebra, are divided before the intoxication.

3. The appearance of the exposed intestine negatives vaso-constrictor stimulation. While the arterial pressure is raised the surface becomes not paler, but rather redder.

4. The pressure in the veins conforms to the preceding. At the same time that the arterial pressure is raised, the venous pressure is either slightly increased or remains normal, or even diminishes.

5. The pressure in the pulmonary artery increases comparatively less than does that in the aorta. The relation between the aortic pressure and that in the pulmonary artery changes in favor of the former.

5. The irritability of the inhibitory fibres of the vagus disappears in the course of the intoxication; hence, at a certain stage, stimulation of the vagus causes no slowing of the pulse.

7. The irritability of the accelerator nerves remains intact throughout.—*Centralblatt für die mediniz. Wissenschaften*, June 2, 1888.

Melæna Neonatorum—In the *Deutsche medizin. Wochenschrift*, of May 31, 1888, Dr. Otto Fross reports a case of melæna neonatorum, in a female infant, with recovery.

Blood was copiously passed by mouth and anus. The treatment consisted in placing the head low, surrounding the extremities with cotton wadding and hot water bottles; placing an ice bag upon the abdomen for two hours at a time, with intermissions of an hour; hypodermatic injections of ergotin and of camphor (of each three-quarters of a gr. twice or three times a day); the administration of the liquor ferri sesquichloridi (one drop every two hours in iced milk), cold solution of albumen and alcohol. At two months the child was as well developed as its age warranted. Melæna neonatorum is a rare affection, occurring once in 500 births (Henoch), or in 1000 (Genrich).

Iodoform for Hæmoptysis.—CHAUVIN and JORISENNE (*Le Prog. Méd.*, No. 20, 1888) recommend iodoform in pulmonary hemorrhage. These are two formulæ:

Iodoform . . . gr. ¾.
Extract of gentian . q. s. to make one pill.
S. Three to five pills in twenty-four hours.

Iodoform . . . gr. ¾.
Tannic acid . . . gr. iss.
Extract of gentian . q. s. to make one pill.
S. Three to five pills in twenty-four hours.

—*Therap. Monatshefte*, June 1, 1888.

A Case of Intussusception of the Stomach.—PROF. CHIARA, before the Verein deutscher Aerzte in Prag, stated that Engel had reported the occurrence, at times, shortly before death, of the slipping of the larger portion of the stomach over the smaller, as a result of excessive peristalsis; but no report of a true intussusception of the stomach had hitherto been made, and the following case must be considered as unique of its kind. It was that of a woman, aged fifty-four years, who had died after having been under observation for twelve days at Pribram's clinic. Several weeks before admission into the hospital, in consequence of severe physical strain it was thought, she was suddenly attacked with pain in the epigastrium, bloody vomiting and diarrhœa. The manifestations promptly disappeared under treatment, but soon returned with vehemence, in consequence of which the patient came to the clinic of Prof. Pribram.

She was found to be much emaciated and jaundiced. A cylindrical tumor, of varying consistency and size, was detected in the pyloric region; there was marked peristaltic action of the stomach, occasional vomiting of bloody or bile-tinged masses, and diarrhœa, from which a diagnosis of ulcerative carcinoma of the pylorus was made. At the autopsy on the 11th of March, of last year, there was seen a partial intussusception involving the greater curvature at the pyloric area, induced by a polypoid adenoma of the mucous membrane, and reaching into the upper portion of the duodenum, which could be reduced by slight traction on the greater curvature; the upper portion of the duodenum was much dilated and greatly hypertrophied.

The partial intussusception of the stomach had given rise to stenosis of the pylorus, with its consequences. The clinical manifestations led to the conclusion that the ready reduction of the intussusception observed post-mortem must have existed during life, and the contraction of the greatly hypertrophied upper portion of the duodenum had apparently caused the occasional replacement of the intussuscepted part to its normal situation.

Prof. Pribram remarked in connection with the diagnosis that the evidence of a cylindrical tumor in the pyloric region, the occasional bloody vomiting rendered plausible the view of an ulcerating carcinoma of the pylorus, with marked peristaltic movement of the stomach, though the early appearance of bile in the vomit, the interval of relief and the period of the occurrence of the peristaltic action of the stomach occasioned some doubts as to the correctness of the diagnosis.

Pribram explained the recurrence of the invagination by the tumor lying in the lumen of the pylorus being forced into the duodenum by the violent vomiting in the expulsion of an impacted gall-stone, which was found at the autopsy.

As to the treatment, as the tumor was mobile, operative procedure might have been thought of, but for the high degree of emaciation and the suspicion that, in view of the existing jaundice, the liver also was carcinomatous; though, even with a correct diagnosis, with the ulceration of the bile passages which existed as a result of the cholelithiasis, the success of an operation would have been questionable. But early operative measures, that is, with a better nutritive condition and prior to the impaction of the gall-stone, might have afforded permanent recovery.—*Wiener medizin. Presse*, March 27, 1888.

The Treatment of Gall-stone Colic. — MR. JONATHAN HUTCHINSON recommends (*British Medical Journal*, June 30, 1888) the use of anæsthetics to full insensibility, kept up for a long time, both preceded and followed by opiates, as the best treatment for all forms of gall-stone colic. It does not matter whether the stone is impacted in the common duct or in the bowel; we can scarcely do better than prevent spasm and favor relaxation of the parts concerned. By these measures, he has, in several cases in which he had been called in with a view to operation, succeeded in quite removing symptoms which were very urgent.

Oxidizing Oils.—R. BENEDIKT and F. ULZER (*Ztsch. f. Chem. Ind.*), stimulated by a patent by T. H. Gray, have made experiments with cotton-seed oil by passing a stream of air through it at 200 degrees, with a view of oxidizing the oil. According to the length of time the process is continued the oil becomes more or less thick, and finally a gelatinous mass. The oil remained neutral; the reaction did not concern itself with the glycerin, but the action of the oxygen exerted itself upon the glycerides of the liquid fat acids contained in the oil, changing these partly to glycerides of oxyfat acids. The authors found the "Soluble Castor Oil," put up by a firm in Hull, to be oxidized cotton oil.—*Pharmaceutical Record*, June 15, 1888.

Hydrocele Neonatorum.—WICHSELMANN, in the *Archiv für Chirurgie*, Bd. 36, S. 627, comes to the following conclusion: Hydrocele in the newborn is more common than is generally known; it is mostly right-sided; it comparatively often communicates with the abdominal cavity, and probably develops in part in utero.—*Fortschritte der Medicin*, June 1, 1888.

A New Method of Gastrostomy with the formation of a Sphincter.—After gastrostomy has been successfully performed for an impassable stricture of the œsophagus,

and nourishment can be administered through the fistula, undesirable complication are apt to arise, in that the gastric fluids escape at the side of the canulas and tubes, giving rise to excoriations of the abdominal wall. The condition shows no tendency to improve, but, on the contrary, the fistula tends to enlarge. Various means to overcome this difficulty, some operative, some mechanical, have been recommended, but none seems to have attained the desired end.

Girard, before the local Medico-Pharmaceutical Society of Berne, on May 1st, described an operative procedure which he had applied several weeks before in the case of a patient in the hospital. The patient, unfortunately, only consented to the operation after he had been much reduced by inanition, and only survived the operation one day; and died of debility.

A vertical incision, about six inches long, was made, dividing the upper portion of the left rectus abdominalis. The abdominal cavity was opened at the middle of this incision, a conical portion of the anterior wall of the stomach in the neighborhood of the fundus drawn out, and the base of the cone, by means of silk sutures, accurately attached to the margins of the abdominal incision—that is, the peritoneum and the posterior layer of the sheath of the rectus muscle. Then a finger's breadth of muscular tissue, on each side of the incision, was separated, preserving about four inches, and these two bridges of tissue so looped over one another, in a measure crossed, that a muscular sphincter was formed, through the opening of which the apex of the cone of gastric wall was brought out. A number of catgut sutures fixed the muscular masses and the gastric cone in position. On account of the feebleness of the patient, it became necessary at once to open the stomach with a puncture and inject liquid nourishment through a drainage tube of small calibre.

It was hoped that by this device the sphincter made in the voluntary muscular tissue could be closed voluntarily by contraction of the rectus muscle, and, at any rate, that its enlargement would not occur. Even though the bridges of muscular tissue should undergo fibrous degeneration, on account of their connection with the rest of the muscle, above and below, they would act as sphincters by its passive extension.

The post-mortem examination showed that everything had remained in its proper position; the stomach was already firmly adherent to the peritoneal opening.—*Correspondenz Blatt*, June 1, 1888,

Sulphonal.—Dr. Salgo, in the *Wiener medizin. Wochenschr.*, No. 22, reports upon the use of sulphonal in a few cases, at the Insane Asylum at Budapest. The drug has not proven efficient in all cases, as in the sleepless, restless paralytics; but it was of service in some, as in a case of severe virile hysteria, in hypochondriasis, in epilepsy and others. The sleep caused by sulphonal was longer and calmer that that from paraldehyde. On account of its tastelessness, sulphonal was better taken than paraldehyde or chloral.—*Münchener medizin. Wochenschr.*, June 5, 1888.

Phenacetin.—Rumpf, of Bonn, in the *Berlin. klin. Wochenschr.* of June 4, 1888, formulates the following conclusions as to the action of phenacetin:

1. Phenacetin is a certain antipyretic, free from unpleasant effects, which may be given in doses of seven and a half grains to adults, and of three to four grains to children.

2. Phenacetin can be administered as an antineuralgic, in doses of fifteen grains:

a. In all cases of vaso-motor neuroses.

b. For the lancinating pains of tabes and the neuralgias of chronic neuritis.

c. As a palliative remedy in the most various neuralgias.

Bloodletting in Diseases of the Eye.—Fieuzal (*Archives d'Ophthalmologie*) states that local and general bloodletting has unjustly been almost forgotten. Particularly in diseases of the eye may bleeding be followed by excellent results. The writer has thus successfully treated cases of retino-choroiditis, simple choroiditis and sclero-choroiditis. Frequent bleeding may also be applied in cases of neuritis and cyclitic processes after operations for cataract. Local bleeding is better done with the heurteloup than with leeches, because the latter do not act rapidly enough. After the bleeding the eye must be bandaged and kept in a dark room for twenty-four hours, so that an increased supply of blood to the choroid is prevented.—*Memorabilien*, May 31, 1888.

Physiological Action of Cocaine.—This has been studied by Mosso (*Annal. de Pharm. et Chim.*) experimentally, who finds cocaine to be our best cerebro-spinal excitant. If an animal has taken a deadly dose of chloral hydrate and is in a deep sleep or comatose condition, an injection, hypodermatically, of one-eighth to one-sixth of a grain of cocaine to each 2.2 lbs. of body-weight suffices to increase the frequency of the pulse and to bring about an awakening of the animal, but the low temperature produced by the chloral remains the same. On the other hand, three-quarters of a grain of cocaine will counteract the effects of twenty-three grains of chloral hydrate. Under these circumstances Mosso believes that cocaine may be advantageously administered in cases of poisoning by chloral hydrate, opium, morphine and other narcotics which bring about a sedative action on the nerves and circulation and respiration.—*Pharmaceutical Record*, June 15, 1888.

A New Surgical Soap.—In the *Revue Médicale de la Suisse Romande*, No. 5, 1888, page 285, Prof. Auguste Reverdin, of Geneva, speaks highly of a "surgical soap" prepared after the following formula:

R.—Oil of sweet almonds . .	72 parts.
Lye (*lessive*) of soda . . .	24 "
Lye of potash	12 "
Sulpho-carbolate of zinc . .	2 "
Essential oil of roses . .	9.5 "

(Mem.—The preparation consists in slowly adding to and carefully mixing with the almond oil the lyes and the sulpho-carbolate, part by part until an intimate and homogeneous mixture is obtained.) The latter is kept for several days at 68° F. The mass, which gradually acquires the consistence of soft paste, is then divided into any number of portions that may be desired; these are placed in suitable moulds, in which they are kept till they are completely solidified.

Prof. Reverdin has been using this antiseptic soap

since the summer of 1887, when he visited Prof. Bottini's clinic at Milan, where it is extensively employed for various purposes. The soap is said to possess wonderful cleansing, as well as antiseptic, properties, and it does not irritate the skin, however sensitive or irritable the latter may be. Moreover, as the soap contains an excessive proportion of fatty substances, it does not dry the skin. The presence of potash makes the soap by far more active comparatively than a pure sodic soap, since, as Dr. Unna has proved, potash has a more energetic solvent action on the horny layer of the cuticle than soda.

Prof. Reverdin recommends this soap not only for general use in hospital and private practice, but also for washing the hands in dissecting-rooms and everywhere where the hands come in contact with decomposing substances. Further, he urges that barbers should universally adopt this disinfecting soap for their purposes, and thus protect their customers from various infectious diseases, to which they are exposed in their shops. Prof. Reverdin has also obtained good results from this soap in various cutaneous affections. Finally, it is a very pleasant toilette soap, as he himself and many of his patients and friends have found. — *British Medical Journal*, June 30, 1888.

The Treatment of Certain Forms of Dyspnœa with Carbonic Acid Gas.—Edm. Weill, before the Paris Académie des Sciences, in February, stated that he had successfully treated the dyspnœa of pulmonary and laryngeal phthisis, and of emphysema, by the inhalation, twice daily, for two to five minutes, of a half to a gallon of carbonic acid gas. In a recent paper, René Chabannes, of Lyons, confirms the foregoing. He has used the inhalations for the dyspnœa of advanced pulmonary and laryngeal tuberculosis, in asthma, in catarrhal affections, as well as in cardiac and renal disease, and is satisfied with the results. The technique is simple: 4 drachms of bicarbonate of sodium and 3 of tartaric acid, producing a gallon or more of carbonic acid, are placed in a flask with a caoutchouc stopper perforated by an angulated glass tube, through which the gas is inhaled; or the patient may mix the materials in a glass and inhale the gas as it is developed.—*Wiener medizin. Pr.*, June 10, 1888.

Creolin—a New Antiseptic.—Amon (*München. medizin. Wochenschr.*, June 26, 1888) has had good results from the use of creolin in scrofulous and phlyctenular conjunctivitis and keratitis, in diphtheria and in pulmonary tuberculosis. He uses solutions of one-quarter to two per cent., applied locally and inhaled. The drug is said to be non-toxic, cheap and efficient as a germicide. These are the author's conclusions in reference to its use in pulmonary affections:

It is inhaled readily and without deleterious result.

The inhalations facilitate expectoration, cause a diminution in the secretion and afford the patient relief.

Fetor of the expectoration is overcome or diminished. A three per cent. creolin powder is advantageously added to the spit cups.

In some cases in which the infiltration involves only the apices or small areas of an upper lobe, good results follow (disappearance of rales and clearing up of dulness).

A New Artificial Fluid for Counting Blood Corpuscles.—At the last session of the Paris Académie des Sciences, Mayet submitted a new artificial fluid for measuring the corpuscular elements of the blood. Four cu.mm. (6½ minims) of blood are mixed with 500 cu.mm. (1⅔ fluid ounces) of a watery solution of osmic acid, and allowed to stand for three minutes. Then 500 cu.mm. (1⅔ fluid ounces) of a mixture of 45 cu.cm. (1½ fluid ounces) of pure glycerin, an equal quantity of distilled water and 17 cu.cm. (4⅔ drachms) of a watery solution of eosin are added. The red corpuscles are colored red by this solution, while the white remain uncolored. By this means the counting is notably facilitated.—*Wiener medizin. Pr.*, June 10, 1888.

Local Anæsthesia.—Liebreich, in experiments on rabbits and guinea-pigs, by means of injections into the pleura or instillations into the eye, found that local anæsthesia was produced by ammonium chloride, but not by the carbonate or nitrate; the iron salts are also anæsthetic, especially the sesquichloride; also the acetate of lead, but not the zinc salts. Of organic substances, hydrochinon, resorcin, antipyrin; of the oils, turpentine and eucalyptol are local anæsthetics. These medicaments paralyze the terminal nerve filaments and irritate the portions immediately adjacent. They probably exert a caustic action, cause vascular dilatation and a condition which has been called anæsthesia dolorosa. The duration of the anæsthesia is variable. In the case of the chloride of iron it was two hours and more.—*Transactions of the Seventh Congress für Innere Medicin.*

Rheumatismus Nodosus.—Lindmann, of Manheim, in the *Deutsche medizin. Wochenschr.*, June 28, calls attention to the development of subcutaneous nodules in cases of acute rheumatism, "rheumatismus nodosus." They occur mostly in the young and in females, at about the third week of the disease, in numbers from one to more than fifty, in size from a pin's-head to an almond, their favorite seat being at the knee and elbow-joints, over the extensor tendons on the dorsum of the hand, at the malleoli and at the spinous processes of the vertebra, on the occiput and forehead, though there is no part of the body where they may not be.

The author comes to these conclusions:

1. In articular rheumatism, particularly in youth, subcutaneous nodules at times occur as a symptom.

2. Very frequently a cardiac affection, at times with chorea, exists at the same time.

3. They are sometimes the only symptom of the existing rheumatic affection; there is, at times, an exacerbation of the cardiac affection with their appearance.

4. They demand no therapeutic interference.

The Alkalinity of the Blood in Disease.—From a study of eighty-eight cases, v. Jaksch (*Zeitschr. f. klin. Medizin.*, xiii. 3 and 4) arrives at the following conclusions:

1. Fever mostly leads to a more or less marked diminution of the alkalinity of the blood. 2. This is a constant feature in uræmia. 3. Diseases of the liver, with destruction of tissue, give rise to the same symptom. 4. Leukæmia, pernicious anæmia and chlorosis scarcely cause any alteration of the alkalinity. 5. CO poisoning also seems to diminish the alkalinity.—*Fortschritte der Medizin*, June 15, 1888.

THE MEDICAL NEWS.

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SATURDAY, JULY 21, 1888.

THE HYGIENIC TREATMENT OF SMALLPOX.

DURING the season just ending smallpox has, as usual, figured largely in the death-rates of most large cities. In some, especially in Europe and South America, the disease assumed formidable proportions. In this city the number was not large enough to entitle it to the name of an epidemic. Through the courtesy of the Health Officer we learn that since the first case was reported, in the middle of March, there have been slightly more than two hundred cases, with a death-rate of not quite twenty-five per cent.—an average mortality. Yet the occurrence of even this number of cases shows with what tenacity the disease hangs on, and indicates the necessity of the most vigorous means in controlling it.

Smallpox is unique among human diseases in having an almost perfect prophylaxis; but ignorance and indifference prevent its complete application. Compulsory vaccination, as practised in Germany, would probably be objected to in this country, as an infringement of personal liberty, and as vaccination itself does not protect in every case, there will probably always be enough predisposed persons to keep up the source of the disease. The possibility of extirpating smallpox must, therefore, be given up as visionary, and every effort that the means in our power will permit devoted to rendering it impotent. These means are, beside vaccination, isolation and disinfection.

Isolation, to be perfect, must be carried out in separate wards or barracks. To undertake this in rooms in large hospitals is difficult and dangerous. Under all circumstances, however, disinfection of the patient, the room, in short, of everything falling under suspicion of infection, must be practised. Ignorance of the cause of a disease is not, as has been alleged, any hindrance to disinfection. In the case of smallpox we may assume that the cause is a living organism, so that the general rules of antisepsis are applicable here as to other contagious diseases. The necessity for disinfecting the skin lesions is evident, since they must contain the contagious principles. Smallpox is probably not contagious during the earlier stages, but from the duration of the crusts, the length of certain epidemics may be understood. Thus some cases must remain sources of infection for five or six weeks.

To disinfect the face, and by this also limit the suppuration and consequent disfigurement, applications having undoubted antiseptic properties should be used. The occasional use of solutions of corrosive sublimate of the strength of one to one thousand, or of thymol one to thirty, will be found efficient and safe. For the rest of the body baths are means not only of disinfection, but also of giving the patients a great deal of relief. Warm water loosens the crusts and greatly diminishes the inflammation which accompanies the exanthem and which sometimes lasts so long. Baths should, therefore, be given daily, in water at the temperature of the body, and lasting from one-half to one hour. Various antiseptics have been proposed as adjuvants to the baths. Many of them are excluded by the danger of poisoning. In a recent number of the *Lyon Médical* the use of soft soap is advocated. This has undoubted germicidal powers, arresting the growth of anthrax bacilli, or in stronger solutions (1 to 1000) killing them. It is not, however, equally fatal to some other bacteria, such as those of putrefaction. Half a pound of soft soap, in a bath of fifty to sixty gallons of water, could be used with safety, though the physician should observe carefully its action on the skin, some persons being very sensitive to its effects.

Bed linen and other infected articles of clothing are best disinfected by exposing them to the action of vapor of water at or above the boiling point for a period of one-half to one hour, according to the size of the object. When the proper heating apparatus cannot be had, repeated boiling will probably give results as trustworthy. Furniture should be washed with strong solutions of bichloride of mercury and then with soap and water.

The greatest difficulty will often be encountered in disinfecting rooms. Heat is out of the question. Sulphur and chlorine vapors were formerly used extensively, but beside being inapplicable to many rooms, are uncertain at the best, and now given up. The plan originated by Guttmann, of spraying the rooms with bichloride solutions, has many disadvantages, and is not within the reach of all. The Berlin police authorities have recently rejected all these methods, and adopted one long known, and shown by experiments of Esmarch to be certain. This consists in rubbing down the walls and other surfaces with bread, the immediate burning of the latter, of course, following.

The indications here given seem to be at present the best, indeed the necessary, means of controlling what has ever been looked on as one of the greatest scourges of the human race, and only by carrying them out with exactness can we hope to keep it within the smallest possible limits.

SACCHARIN.

Through the daily papers we learn that saccharin is to be made the subject of a parliamentary investigation in France. Increased consumption of it has so reduced the price that it has seriously interfered with the beet-sugar industry. In this country it has apparently not received so much attention as in France and Germany.

According to Paul Cheron (*L'Union Médicale*, No. 81, 1888), the saccharin of Fahlberg is not the only substance which goes by that name. Péligot has applied it to a hydrocarbon of no present importance. Fahlberg's saccharin, derived from coal-tar, is an acid anhydro-ortho-sulphamido-benzol, capable of combining with bases. It appears as a white, crystalline powder. Its solubility varies with its purity, but as made by Fahlberg it dissolves in two hundred and eighty-six volumes of water at 50° F., and in eleven volumes at the boiling-point. It is slightly more soluble in alcohol and ether. The addition of alkaline carbonates increases its solubility. It is eliminated unaltered in the urine. The milk and the saliva do not contain it. It has no effect on nutrition or on the elimination of nitrogen. It is equal in sweetness to two hundred and eighty times its weight of sugar, and the sweet taste may be perceived in a dilution of one to seventy thousand. It is this property on which is based its employment in diabetes, and the question as to its harmlessness or the reverse is, therefore, of great importance and must be studied with care.

Stutzer, Abeles, Pollatschek and Mercier regard it as harmless, even when taken for a long period, and this opinion is shared by Adduco and Mosso. On the other hand, many see in saccharin grave disadvantages. Worms has given it in doses of one and a half grains daily in diabetes: one patient supported it well, three others were compelled to stop at the end of a fortnight. Loss of appetite and epigastric uneasiness were the chief symptoms.

Hedley has noted the rapid development of a very disagreeable, sweet taste: Kohlschutter and Elsasser have observed in their cases diminution of polyuria and of sugar, but with loss of appetite. Dujardin-Beaumetz believes that the stomach and intestinal symptoms are due to the action of saccharin on the ferments of the alimentary canal. Stutzer has shown that in artificial digestion saccharin does not hinder the action of the gastric juice, and Salkowski found albuminoid digestion unimpaired in its presence. The latter found, also, that it interferes with the saccharifying action of the saliva and pancreatic juice in an acid medium, but that when neutralized the conversion proceeds.

It is, therefore, evident that in some cases saccharin is badly supported. Probably the renal condition and impurities in the drug have something to do with the result; certain it is that it will often not be tolerated. It has been claimed that through its action on fermentative processes saccharin would prevent the formation of boils and carbuncles, but this is only a hypothetical advantage, and it is only too evident that in diabetes nothing must be done to compromise the digestive apparatus. Our present knowledge, then, goes to show that saccharin is to be given, if at all, with great caution.

Saccharin is, to a certain degree, antifermentative and antiseptic. Macnaughton Jones believes it equal to salicylic acid and thymol. In the diabetic it inhibits the torula fermentation and thus might be used in cystitis. In tuberculous cystitis it has failed, but it has been used with success in simple cystitis with ammoniacal fermentation. As a microbicide of some power, saccharin has been proposed as an intestinal antiseptic, but the necessity of employing small doses and the danger of creating digestive trouble must render such use rarely indicated.

In pharmacy, saccharin has been used to disguise the taste of very bitter medicines, such as quinia. Lutz has advised for that purpose two solutions, one

a strong alcoholic solution, the other a combination with mannite. These vehicles are to be so dosed that fifteen grains of the preparation equal one hundred and fifty of sugar or two hundred and twenty-five of simple syrup. It has also been suggested as a preservative for mixtures. For all these purposes, however, there is the same risk, in prolonged use, of exciting digestive disturbances.

The French health office has expressed the opinion that saccharin cannot be indiscriminately taken in large quantities, particularly as a substitute for sugar, regardless of health, and the Minister of Agriculture has issued a decree forbidding its importation. At the same time the use of the drug in the preparation of confections and syrups is also forbidden.

The next International Congress of Otology will be held at Brussels, from September 10th to 16th, Dr. C. Delstanche being president-elect. American otologists who desire to be present are invited to address the Secretary, Dr. C. Goris, 143 Rue Royale, Brussels.

At their late annual meetings, Dr. Charles N. Lewis, of Jackson, was elected President of the Michigan State Medical Society, and Dr. P. S. Conner, of Cincinnati, President of the Ohio State Medical Society.

The Eighth Annual Meeting of the Lehigh Valley Medical Association will be held at Paxinosa Inn, near Easton, Pa., on Wednesday, August 15th. The annual address will be delivered by Dr. Thomas J. Mays, of Philadelphia, who has chosen for his subject "The Treatment of Lung Cavities."

The Southern Surgical and Gynecological Association will hold its first meeting at Birmingham, Alabama, on the 11th, 12th and 13th of September, 1888. Dr. W. D. Haggard, of Nashville, Tenn., is the President.

At the meeting of the Examining Board of the U. S. Marine-Hospital Service, recently convened in Washington, twenty-one candidates presented themselves. Of these, four were rejected on account of physical disability, three withdrew, and six made the necessary percentage to pass.

In the Quarterly Report of the Secretary of the Illinois State Board of Health, presented to the Board on June 29th, Dr. Rauch, in announcing the adoption of a three years' course by the Jefferson Medical College of Philadelphia, and the College of Physicians and Surgeons of New York, stated that "intimations have been received from other colleges that they will soon do likewise."

A remarkable sequence of multiple births, reported from Henry County, Georgia, is worth remembering when the subject of the unfruitfulness of American women is brought forward for discussion. Mrs. B., aged twenty-six years, was married a little more than eight years ago. During that eight years she has had five confinements and has given birth to eleven children. At no birth were less than two children born; at the second, triplets were delivered, while at all the others there were twins. The children all survive, the youngest being four months old. The account from which the above is taken does not state whether the heroine is white or colored, but, from the context, we infer that she is white.

The Medical Chamber of the Province of Hanover, at its session of May 8th, discussed secret proprietary medicines and means for their suppression. The fact that proprietary medication had grown to a degree dangerous to the public welfare, and that legislation restraining it was a pressing necessity was acknowledged by the majority, independently of appeals to the government meanwhile, as a proper regulation of this matter was anticipated.

Dr. A. Y. P. Garnett, of Washington, died at Rehoboth Beach, Delaware, on Wednesday night, July 11th, of heart-failure. He had been severely ill for several days, and was believed to be slowly convalescing. He left Washington for the seashore on the morning of his death, for the purpose of recruiting his failing health.

He was born in Virginia, in 1820, was graduated in medicine at the University of Pennsylvania in 1841, entered the United States Navy as Assistant Surgeon the same year, was promoted to Surgeon in 1848, and resigned in 1850, in order to accept the Professorship of Clinical Medicine in the National Medical College of Washington. At the breaking out of the war he left Washington and attached himself to the medical staff of the Confederate Army. At the close of the war he returned to Washington, and was again elected a Professor in the National Medical College. In 1887 he was elected President of the American Medical Association, and presided at the late meeting in Cincinnati.

REVIEWS.

THE PHYSICIAN'S LEISURE LIBRARY. Nos. 8 and 9. THE INFECTIOUS DISEASES. By CARL LIEBERMEISTER. Translated by E. P. HURD, M.D. George S. Davis, Publisher, 1887.

UNDER the subject of infectious diseases one naturally expects to have considered more than some of the acute exanthemata, malaria, typhoid fever and diphtheria, yet that is all we can find in the volumes forming the subject of this notice. In addition to the sin of omission, the diseases mentioned are by no means adequately described. The chapters on etiology are not up to our present knowledge, notably as regards malaria and typhoid, and the therapeutic notes, in the form of extracts from journal articles, present nothing new. What useful purpose these volumes can serve is difficult to conceive, since they do not represent the author, and fall short of the purposes of a compend, which latter both form and price seem to suggest.

THE ESSENTIALS OF MEDICAL CHEMISTRY AND URINALYSIS. By SAMUEL E. WOODY, A.M., M.D., Professor of Chemistry and Public Hygiene, and Clinical Lecturer on Diseases of Children, in the Kentucky School of Medicine. Second Edition. Revised and Enlarged, with eighty-five illustrations. Louisville: John P. Morton & Co., 1888.

The title of this little work indicates its scope, and it is remarkable how much the author has compressed into such a small space. The greater part is devoted to an outline of inorganic and organic chemistry, and might be read with profit by many who no longer hear lectures. The section on the urine, having only twenty-one pages allotted to it, has necessarily been very superficially treated, though, so far as it goes, the statements made and directions given are fairly reliable.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, June 4, 1888.

THE VICE-PRESIDENT, S. W. GROSS, M.D., IN THE CHAIR.

DR. J. HENRY C. SIMES read a paper on

THE INJECTION OF A SOLUTION OF COCAINE INTO THE URETHRA FOLLOWED BY DEATH.

(See page 70.)

DR. SIMES then reported a case of

TRAUMATIC ANEURISM OF THE VERTEBRAL ARTERY, THE RESULT OF A GUNSHOT WOUND.

Eliza S., forty-one years of age, was admitted to the surgical ward of the Episcopal Hospital on November 13, 1887. The history given was that on November 9th, four days previously, she had been accidentally shot in the neck. Her condition when admitted was as follows: On the left side of the neck, directly over the line of the carotid artery, about its middle, was seen the wound of entrance of the ball; just above this wound were two small abrasions of the skin. Over the whole anterior part of the neck, and extending two or three inches over the thorax, there was seen an ecchymosis of a greenish-yellow color. At the seat of the wound, covering an area of about two inches, was observed a swelling, not very decided. Upon palpation, this swelling pulsated markedly, and was undoubtedly expansile in character; also of an extremely vibrating nature, feeling very much as if the fingers were in contact with a galvanic battery; upon auscultation, a distinct thrill and loud bruit were quite manifest. There were swelling, pain, especially on movement, and some slight paralysis of the left arm. The general condition of the patient was fairly good.

On November 15th, two days after admission to the hospital, at a consultation of the surgical staff, it was decided to attempt to ligate the common carotid artery, believing it, or one of its branches, was injured. During the interval of two days, the swelling had increased in size, and the thrill and bruit had become much more distinct; the ecchymosis had also extended further over the thorax. Ether was administered, and a ligature was passed around the common carotid artery, just above the clavicle. Pressure upon this artery, while lessening the pulsation of the tumor, did not, however, perfectly stop it. Before tying the ligature, which had been passed around the carotid artery, the operator continued his incision upward over the swelling, and threw a ligature around the artery above it. The ligature below was now tied, and instantly a most terrific flow of blood gushed out of the wound. The upper ligature was immediately tied, but had no control over the hemorrhages; artery forceps and fingers were employed to seize any and all bleeding points, but the blood continued to flow; finally, Dr. Nancrede thrust his finger deep into the wound, against the vertebræ, when the hemorrhage at once stopped.

It was now evident that the vertebral artery had given away; indeed, the fractured vertebra was felt at the point whence the bleeding came. The possibility of ligating the ruptured artery could not, under the circumstances, be entertained; it was not practicable, and the only procedure which suggested itself as possible, was to plug the artery in the foramen through which it passes. A piece of cork was cut of suitable size, and an attempt was made to insert it into the long canal; this, however, was not successful. A long strip of lint, one inch wide, was now, by means of the fingers and forceps, forced into the canal, and the hemorrhage ceased; the wound was packed with lint, and over it a shot-bag was placed, to act as a compress.

The patient was considerably shocked, but under suitable treatment soon reacted. It was thought best not to remove her from the operating-table; by the use of sandbags the head was made immovable, and she was cautioned as to the danger of bleeding by making any effort on her part to move.

The result was in great part due to the woman herself; she proved to be a most willing and obedient patient. Morphia was ordered to allay restlessness, with milk and beef-essence for food. On November 16th, the next day, she was doing well, temperature normal, pulse good, no difficulty in taking her nourishment, and she had slept fairly under small doses of morphia. On the next day she was removed from the operating-table to a bed without difficulty. *18th.* No change, except elevation of temperature, 101°, undoubtedly occasioned by beginning

of suppuration in the wound. *19th.* The wound freely suppurating; removed some of the packing, washed with bichloride of mercury solution, and dusted with iodoform; temperature to-day 102½°. *20th.* Removed more of the lint packing, and employed same dressing; temperature 101½°. *21st.* The wound looks very well and granulating; removed more of the lint; temperature 102°. *22d.* The last of the lint was removed, and the wound was seen to be contracting very fast. From this date until November 29th, there did not arise any unfavorable symptom, the patient continued to improve in general health, and the wound in the neck all healed, with the exception of skinning over at one angle. At this time there were first noticed some cerebral symptoms, which very rapidly increased; there were ptosis of the left eyelid, and hemiplegia of left side; she soon became unconscious, and died on Dec. 2d.

The *post-mortem* showed softening of the entire right side of the brain. An examination of the neck disclosed the left carotid artery from its origin at the aorta to be obliterated by a thrombus. The vertebral artery, where it passes through the foramen in the fifth vertebra, was destroyed, and about half an inch of its continuity was missing; the remaining portion was filled with a thrombus. There was a comminuted fracture of the transverse process of the fifth vertebra, and the pistol-ball was found lying against the body of this bone. The spinal canal was not opened, nor was there any apparent lesion of the cord or its membranes.

Dr. Charles B. Nancrede said that the thrill which was present in this case presented certain peculiarities. Before the operation was commenced, he expressed the opinion, based on the sound, that it was either an arteriovenous aneurism in which the internal jugular was involved, or else more than one vessel was involved. After placing the ligature around the common carotid, and while trying to pass the aneurism needle around the distal part of the vessel, it entered something from which arterial blood oozed. After failing to check it with forceps the lower ligature was tightened. Pressure on the vessel below had before caused a marked diminution of the pulsation in the swelling. The moment that the ligature was tightened, there was a most appalling gush of blood. The pressure forceps caught a mass of tissue in the upper part of the wound from which blood was flowing. The blood, however, continued to gush out. He then placed the fingers of both hands into the wound, tore it open, and gripped the tissues outward, without any effect. He then made pressure inward. This also failing, he pressed backward, and his thumb slipped into the opening in the vertebra. He believed that several vessels were involved; the distal end of the carotid, the jugular vein and the vertebral artery were bleeding at the same time. He did not think that the vertebral alone could have poured out this large stream of blood.

One point of interest was the effect of the application of Esmarch bandages to the limbs, with elevation, in the almost fatal syncope which followed the bleeding. He could not help thinking that the repeated hypodermatic injections of a saline solution were of decided benefit.

Dr. S. W. Gross said that unquestionably the first case recorded of antiseptic plugging of a wound to arrest arterial hemorrhage, was that of a stab-wound of the neck, in which the vertebral artery was involved. The wound was plugged with iodoform gauze, the bleeding checked and the patient recovered. The operation was performed by a German surgeon.

Dr. Ferdinand H. Gross reported a case of

GUTTA ROSACEA

(or what, in the classification of some writers on dermatology, is termed acne rosacea), and showed a number of photographs representing the patient as he appeared before and after a successful plastic operation had been performed for the relief of the disfigurement of the nose. The unsightly protuberance arose and continued to increase in size during the third stage of the disease, when, with greater expressiveness, the malady is called Rosacea Hypertrophica.

The patient, a carpenter by occupation, was in his fifty-seventh year, and had been affected with rosacea for at least twelve years; while the third stage had endured for about one-fourth of that time. He was never afflicted with specific disease or any other malady of importance, except dyspepsia. He was not a free drinker; although not totally abstemious in the use of liquors, his complaint could not be ascribed to intemperance. When Dr. Gross was first consulted in the case, numerous medicaments had already been administered internally, and local applications had been ineffectually tried. The patient had become sullen and taciturn, refusing to mingle with his usual associates, or to continue his ordinary vocation. His digestive apparatus was out of order, and the dyspeptic condition, already alluded to, was doubtless a factor in the disease, and needed correction. The protuberances seen upon the tip and ala of the nose, obstructed the left nostril, and rendered breathing labored and difficult. The peculiar unevenness and craggy appearance of the affected skin were well marked.

In addition to the earlier changes of the disease, such as passive congestion and dilated bloodvessels, rosacea in the later form here presented consists essentially of hypertrophy of the connective tissue, when the nose may attain enormous proportions; but this condition is rare, and is looked upon by some writers as a dermatological curiosity.

Attention was directed to the disturbed digestive functions before the knife was used to reduce the enlarged and lobulated nose to normal proportions. This was done by first carrying an incision along the lower free border of both alæ (the edge of the knife being directed upward), and the line of the cut passing through the lobe just above the anterior limit of the columna, and through the lumpy masses at that point and on the left ala. To this long incision was joined another, running vertically on the dorsum of the nose from bridge to tip. Two triangular flaps of the thickened integument of the wings of the organ were next dissected up, and the superabundant cellular tissue and lumpy projections were trimmed and scraped away. While doing this, any injury to the lower lateral cartilages was avoided. Hemorrhage was rather copious, as might be expected from a part so congested, but the free bleeding had its beneficial effect upon the final favorable result.

The disease never becomes malignant in its nature, though it may sometimes return. It is now nine months since the operation was performed, and there are no evidences of further trouble. The result of the operation was entirely satisfactory. The nose now presents a normal and shapely appearance, and the photograph recently taken shows no scars.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, June 22, 1888.

FIRST VICE-PRESIDENT, WILLIAM GARDNER, M.D., IN THE CHAIR.

DR. LAFLEUR presented the specimens obtained from a case of

MULTIPLE CAPILLARY HEMORRHAGE AND FATTY DEGENERATION OF THE PANCREAS.

The patient was a man, aged fifty, who had been under the care of Dr. Ross. For several years he had suffered from obscure dyspeptic symptoms. Twenty-four hours before death he was seized with a severe pain in the epigastrium and vomiting; he became collapsed, and rapidly sank. At the autopsy the pancreas was found to be uniformly enlarged to more than twice its natural size, of a dark-reddish color, externally; on section, firm and of an almost uniform, dark-red hue, mottled here and there by grayish patches which resembled the normal parenchyma of the organ. A thin section showed that the general, dark color was due to numerous close-set capillary hemorrhages, separated from one another by a grayish, translucent material. Microscopic examination confirmed the nature of the changes; the hemorrhagic portions having a brownish-red color and presenting a peculiar fissured appearance (due probably to freezing the specimen in making the section). In addition there was universal fatty degeneration of the tubules and acini. The cellular tissue around the pancreas was blood-stained. There was no peritonitis and no evidence of disease in any of the organs.

DR. WILLIAM GARDNER reported a case of

EXTIRPATION OF THE UTERUS BY THE VAGINAL METHOD,

for malignant disease. The case presented several features of unusual interest. The patient, who was unmarried and aged forty-three, had suffered for seven years from pelvic pain, uterine hemorrhage and other discharges; at times fetid, fleshy masses were expelled from the uterus. Anæmia and cachexia were marked. On examination under ether, the uterus was found uniformly enlarged—five to six inches in depth—the cavity much enlarged, and the lining membrane nodular and roughened; extirpation was recommended, and, after due consideration, the patient consented.

Dr. Gardner expected unusual difficulty in the operation because of the large uterus and narrow, rigid vagina and perineum. After ligature of the bases of the broad ligaments and separation of the uterus in front and behind, the uterus was reduced in size by excision of portions. In this way the organ was removed *per vaginam* without much difficulty. Dr. Gardner said he had contemplated the possible necessity or feasibility of a combined vaginal and abdominal operation; detaching the uterus from above after abdominal section, and completing the separation from below, finally lifting the uterus from the pelvis through the abdominal incision. This, however, proved to be unnecessary. Although the operation was a very severe one in the weak state of the patient, she was in a remarkably good condition when put to bed, but she died of peritonitis in forty-eight hours.

Dr. Gardner said that this was the first death he had had in this operation. He had removed the uterus six times by the vaginal method. The present fatal case was by a great deal the most difficult of all. The specimen showed great thickening of the walls of the uterus. Microscopical examination by Dr. LaFleur showed the disease to be a malignant adenoma. The thickened walls were composed of apparently healthy, smooth muscle-fibres, an hypertrophy, probably the result of long continued irritant influence of the disease on the endometrium.

DR. TRENHOLME congratulated Dr. Gardner on his great success in extirpation of the uterus by the vaginal method; a mortality of one in six was a good record. He had himself extirpated the uterus ten times with recovery in only four cases. In some of the cases in which he had operated the condition was desperate and there was but slight hope of recovery from the first. He was very doubtful of the advisability of extirpation of the uterus for malignant disease, and he had almost given up performing the operation. In the specimen presented by Dr. Gardner it appeared to him that the case was non-malignant, the uterus was not fixed and the growth did not infiltrate. In such a case he thought a thorough curetting of the uterus and the application of electricity by Apostoli's method would have been more suitable than excision.

Dr. Trenholme preferred the abdominal operation in removing the uterus; he made use of the V-shaped incision according to the method introduced by himself. This method of making a flap of the cervix was suitable to cases of myomata and was better than ligature by wire, etc. The two flaps formed by the V-shaped incision should be sewed firmly together with silk or shoemaker's thread, and in this way the cavity was completely closed and the danger of hemorrhage prevented. Should drainage be necessary, a tube could be passed through the centre of the stump into the vagina. He thought this operation would have been suitable in Dr. Gardner's case, because the cervix was not involved in the disease.

DR. ARMSTRONG said he would have liked to heard more about the combined method. He had no doubt that fetid discharges had escaped into the peritoneal cavity when the uterus was split up. He thought contamination by discharges from the interior of the uterus could have been avoided by the abdominal operation.

DR. GARDNER, in reply, stated he believed the case to be one of malignant disease; clinically it certainly was. His experience with removal of the uterus by abdominal section had not been as favorable as by the vaginal method. In reply to Dr. Armstrong, he said it was quite probable that the peritonitis resulted from the escape, during the operation, of fetid discharges from the uterus.

DR. SHEPHERD read a paper on a case of

EXCISION OF THE TONGUE, FOLLOWED BY DEATH FROM ACUTE MILIARY TUBERCULOSIS.

The patient, a strong, healthy Irishman, aged sixty-four, was admitted into hospital May 19, 1888, suffering from an ulcer on the left side of the tongue.

Patient had never been ill in his life, never had any cough and had been a very moderate smoker. In September, 1887, first noticed a small hard nodule on the left side of the tongue about one inch from the tip. This troubled him and was cauterized by his medical attendant. An ulcer soon formed which increased slowly. On entering hospital his condition was as follows: On the left side

of the tongue, not far from the tip, was an irregular fissured ulcer with undermined, ragged edges and a sloughy base. The whole ulcer was surrounded by a mass of induration, the size of an almond. The ulcer was painful and the patient was unable to masticate his food; not much salivation and no fetor. Some small, hard glands felt in the submaxillary region. Patient's general condition was good and all his organs apparently healthy. Temperature normal. A portion of the ulcer was snipped off and examined, but nothing but epithelial elements found.

From the age of the patient, the history of the case and the appearance of the ulcer with the surrounding induration and involvement of the submaxillary glands, the case was thought to be one of epithelioma, and immediate operation was advised. The operation was performed on May 23d by the method usually employed by Dr. Shepherd in such cases, viz., preliminary ligature of the linguals with removal of the involved glands and excision of the tongue by scissors. The patient recovered well from the operation, and was fed by the rectum for three days. On the fourth day patient sat up and fed himself, but that evening his temperature rose to 101°. Next day he had a pain in his right side and a well-marked friction sound was heard. The wound was perfectly healthy and sweet and granulating well. On the sixth day his temperature rose to 103°, respiration 41 and patient became very weak, and died on the seventh day.

Dr. La Fleur, who performed the autopsy, reported that the wounds in neck and mouth were healthy, without fetor and healing kindly. In the thorax was found a complete adhesive pleuritis of the right side, and also to a lesser extent on the left side. The surface of both lungs was crammed with gray miliary tubercles the size of millet seeds. Left lung on section also contained numerous miliary tubercles. Bronchi normal. Liver and kidney contained a few miliary tubercles, and the right testicle was enlarged and caseous. A microscopic examination of the ulcer on the tongue disclosed numerous tubercles in the floor and around abundant small-celled infiltration. Tubercles found among the muscle fibres.

Dr. Shepherd said there was now no doubt in his mind that the case was one of tuberculous ulcer of the tongue with a latent condition of general tuberculosis, which was lighted up into activity by the operation; he also discussed the difficulties of diagnosticating such cases from epithelioma, especially when the patient was between sixty and seventy years of age. The case was unique in his opinion. Cases of miliary tuberculosis are reported following several weeks after operation, but such a rapid course was very unusual. The immediate cause of death was no doubt pleuritis in a patient already depressed by a severe operation. At the post-mortem there were no evidences of septic infection.

Dr. George Ross said that the surgical points in this case, which had been considered by the reader of the paper, were most important, but the medical questions which were suggested were of far greater interest. He had no doubt that in certain cases the diagnosis between a tuberculous and cancerous ulcer was impossible. The case was interesting, firstly, from the fact of an acute miliary tuberculosis occurring at such an advanced age; such cases were by no means common; still he had seen not a few cases of acute tubercular meningitis in persons over fifty; secondly, the occurrence of acute miliary tuberculosis after operation was new to him. There was no doubt that this affection had come on rapidly, yet it was not in his experience to see acute tuberculosis running such a rapid course. He was inclined to think it was a case of coincidence, and that the affection would have occurred without operation. The focus of infection was no doubt in the tongue or in the testicle. He did not think the tubercle was latent and had been lighted up into activity by the operation, as suggested by Dr. Shepherd; the tubercles were all of the same age and were recent. The patient's temperature, which had been carefully observed for several days before operation, was normal, and an examination of the chest had revealed nothing. The acute pleurisy, no doubt, was the immediate cause of death.

Dr. Bell said he did not believe the operation had lighted up into activity an already existing miliary tuberculosis. How often do we see tuberculous testicles and glands removed and yet no such conditions result. The man may have been in a condition ripe for the development of tuberculosis, and the shock of the operation, or, more likely, the prolonged etherization necessary in such a radical operation as that performed by Dr. Shepherd, may have started the process. In his experience, however, he had never seen acute tuberculosis run such a rapid course. Dr. Bell mentioned a case of acute tuberculosis which had supervened three weeks after an excision of the hip for strumous disease. In this case, however, there was old disease of the lung. In speaking of the microscopic examination previous to operation he said the examination of a superficial portion of an ulcer revealed nothing; a portion of the base of the ulcer should have been excised. He thought tuberculous ulceration of various parts, such as the rectum, bladder, skin, etc., was often overlooked by medical men.

Dr. La Fleur suggested that the rapidity of the disease might be accounted for by the mode of infection, which was probably through the bloodvessels and not the lymphatics. When infection takes place through the blood acute tuberculosis may run a very rapid course.

Dr. Buller reported a case of

Arterio-venous aneurism of the orbit cured by ligature of the common carotid artery.

The patient was a healthy man, aged twenty-eight, who three months before fell from a bridge a considerable distance, striking the right side of his head and fracturing his jaw. The injury was followed by great swelling and pain, and when the swelling subsided the patient noticed that he had double vision. The pain and swelling gradually subsided until two weeks ago, when he noticed that the right eyeball appeared larger than the left and the pain again increased in severity, being so intense as to prevent him from sleeping—pain was throbbing in character, and was increased by pressure. When first seen the eyeball was much protruded, the conjunctiva œdematous and also both eyelids, pupils active, retina œdematous, but no swelling of the optic nerve. Vision of right eye $\frac{20}{C}$. On pressing the eyeball strong pulsation felt. On auscultation a loud rasping murmur heard, synchronous with the pulse. Pressure on the carotid arrests bruit and pulsation, and diminishes size of the swelling. Arterio-venous aneurism was diagnosticated

and ligature of the right common carotid advised. Dr. Shepherd ligated the right common carotid, dividing it between two ligatures. The patient rapidly improved, the proptosis quickly diminished and pain ceased. At the end of ten days the patient had almost normal vision in the right eye and also normal movements. The œdema disappeared and the eye resumed its natural position. The first dressing took place on the tenth day, when the wound was found completely healed by first intention; the bone drain had entirely disappeared. Temperature never arose above the normal.

Dr. Buller promised at some future time to give a more detailed account of the case, and a review of the literature of arterio-venous aneurism of the orbit.

Dr. HINGSTON reported a case of

COMPOUND DISLOCATION OF THE ASTRAGALUS, IN WHICH THE PATIENT REMOVED THE DISLOCATED BONE.

The patient was a man about twenty-five years of age, who fell with his foot twisted under him; on endeavoring to rise he noticed a bone protruding from the region of the ankle-joint. This was loose and he removed it himself with a penknife and brought it to Dr. Hingston. The bone was the astragalus. The patient made an excellent recovery.

NEWS ITEMS.

The Method of Disinfection practised at the Quarantine Station below New Orleans.—No scientific report published by the government this year has been more important than that just made by Dr. J. J. Kinyown, assistant surgeon in the Marine Hospital Service (*Weekly Abstract*, June 29), upon the germicidal powers of the different methods of disinfection practised under the direction of the Louisiana Board of Health at the quarantine station below New Orleans. The report is important, not only because it shows the degree of protection against the importation of infectious diseases through the important port of New Orleans, but also, since the methods of disinfection practised at other quarantine stations are similar to those in use there, the experiments show approximately the efficacy of each mode of disinfection, and suggest changes that should be made in their use.

The three methods of disinfection tested were: the use of bichloride of mercury solution, the application of dry and moist heat and fumigation with sulphur dioxide.

Dr. Kinyown finds the first of these methods defective, because of the difficulty of getting the disinfecting agent into cracks and corners, rubber goods, the under sides of decks, and into lockers, etc. He discovered in all these localities and articles that the microörganisms existing before the disinfection had not been destroyed, and he found them as plentiful on the floor of the forecastle of one ship, that was exceptionally filthy, after it had been drenched with bichloride of mercury for an hour, as before. Dr. Kinyown recommends that, in order to make this mode of disinfection more effectual, the bichloride of mercury be applied with a spray produced by connection with a steam-boiler, and that it be applied after fumigation by sulphur.

The results from the application of dry and moist heat were the most satisfactory of all. Cultivations of various disease-germs exposed to a dry heat of 176° F., and afterward to steam at a temperature of 212° F., were, with few exceptions, destroyed. Dr. Kinyown thinks that, in order to secure absolute protection, the heat should be made greater and the time of exposure increased.

In eleven experiments seventy-four disease-germs were placed in vessels among articles to be disinfected by the use of sulphur dioxide, but only sixteen of the whole were destroyed, or less than twenty-two per cent. Dr. Kinyown has very little to say about this method of alleged disinfection, except to recommend that the sulphurous fumes be applied in large quantities, and be confined in the compartments to be disinfected a longer time. But he reports his experiments in full, and lets them speak for themselves.

The net result of these tests is to show that some disease-germs escape even when the most effectual modes of disinfection practised at quarantine below New Orleans are resorted to, and that less than one-fourth of them are killed when the least effective method is used. We assume that the quarantine and city health officers everywhere will profit by the suggestions of this report, and that the public will be better protected in the future than in the past.—*Science*, July 13, 1888.

A School for Male Nurses.—The New Training School for Male Nurses was formally transferred on July 5th to the City of New York, by Mr. D. O. Mills, through whose liberality the building has been erected on the grounds of Bellevue Hospital. The building is of Carlisle stone and red brick, with terra-cotta trimmings, built in a simple form of the Romanesque order of architecture, five stories and basement in height, in the form of an L, with a frontage of 75 feet on Twenty-sixth street, and 80 feet on the East River. On the main floor are the administration rooms and offices, the dining-room and kitchen, and the matron's and linen rooms. The next four floors are divided into 50 sleeping apartments and closets and bath and toilet rooms, except the two upper floors of the wing overlooking the river. These are thrown into one large hall, about 30 by 80 feet in extent and over 18 feet high, in which will be contained the museum connected with the hospital. The building was furnished completely from top to bottom with white oak chamber and antique oak office, reception and dining-room furniture, linen, bedding, tableware, silver and range furniture, and, as given yesterday to the city, cost the donor nearly $100,000. In presenting the building, Mr. Mills said: "In the great development of means for caring for the helpless sick, which marks the present century, no want has been more felt than that for trained nurses. Medical science has made immense advances, but while the schools furnished physicians, and the humane spirit of the age built and endowed hospitals, it was still hard to supply the skilled care which often does more for the sufferer than medicine. The Training School for Female Nurses was a great gain. Personal observation of the good it has done led me to think that an equal service might be rendered by an institution for the training of male nurses. The humane work of the physicians in charge of Bellevue and other city hospitals could thus be efficiently supplemented, and the sufferings of the poor under their care alleviated, while the community would gladly employ all the male nurses the hospital could spare, and so enable the students thus trained to make the vocation of nursing their life-work. . . . .

I have, therefore, taken great pleasure in erecting for this purpose a building on the grounds of Bellevue Hospital."

The Prevention of Puerperal Fever. — DR. WILLIAM GOODELL writes to the *Medical Standard* (July, 1888), that he succeeded at the Preston Retreat in stamping out puerperal fever from its wards by the following procedure: Previous to the birth of a child, the vagina was cleansed by a quart of (1 to 2000) mercury bichloride solution. After complete delivery the vagina was again cleansed in the same way. A suppository containing twenty grains of iodoform was slipped into the vagina. A pad of sublimated cotton, kept in place by a T-bandage, covered the vulva. His hands and those of his assistant were carefully cleansed by soap, warm water and the nail-brush and dipped into a (1 to 1000) sublimate solution before each examination. After the introduction of this plan into the Retreat, not only did puerperal fever cease to appear, but ophthalmia neonatorum vanished.

Every year, he says, he is called in consultation to see about a dozen women die from puerperal fever whose lives, he is sure, might have been saved had the foregoing treatment been adopted.

Hydrophobia in Paris.—In the first five months of 1888 there were no fewer than 280 applicants at M. Pasteur's laboratory from the Department of the Seine alone, all of whom had been bitten by dogs either known to be rabid or suspected of being so. This number is almost equal to the corresponding total for the whole year 1887, which amounted to 306. The Prefect of Police has, therefore, issued an order that for six weeks no dog shall be allowed to go about the streets of Paris, unless led by a string. The owner of two dogs, which had been in contact with a rabid cur, was recently sent to prison for six days and fined 200 francs ($40) for refusing to have them destroyed. —*British Medical Journal*, June 30, 1888.

The Physician as a Public Man.—The passing away of a man distinguished as physician and citizen is full of suggestion to those who are left behind to uphold the honor of the profession he adorned. The complaint is on many a lip that men are abstaining from their share of the responsibility in public duties. There is not always a clear sense of discrimination between political and public life. The pursuit of politics, as a profession, is not compatible with the diligent performance of other duty, and participation in practical politics is not possible for all men. Neither is public life bounded by the presence of large assemblies or prominent connection with great public enterprises. This country has stretched its civilization and built up its massive structure out of the thought and labor of the common people. The common people means all the people. They who have conceived and directed are one with those who have wrought. With the increase of population is coming, faster and faster, the separating class of those who teach and those who are to be led. The educated man must be the leader wherever he is; the illiterate are always children and seek a leader. In this country the opportunities for public duty are everywhere, from centre to outskirts, and always have there been men from every station to take their part in shaping the civilization. Apart from the pressure of life's necessities, men are everywhere adding to their occupation by confessing their responsibility in the promotion of schemes that look to the comfort and betterment of life for the less favored. There is, through the length and breath of the land, an enormous activity of vigorous life, alert and earnest, though unobtrusive, swaying sentiment and adding to the common fund of improved measures of public weal.

It would be difficult, in this common effort, to compare rightly one man's influence with another's, and it would be unwise to contrast the influence of various institutions, systems or measures. But the persuasive power of the medical profession to influence opinion and mould sentiment is not open to question. It does, however, deserve to be understood. The medical man, educated, sincere and high-minded, who, for two score years working within a limited circle, concentrating the best that is in him on a definite purpose, coming into exceptional personal contact with home intimacies, with an opportunity for impressing his own personality, open to no other calling in life, is a public man, in public life, doing a public service, that cannot be matched for influence on public opinion by any other man in any other vocation, and cannot be overrated. Let any medical man feel that, while this is his possibility, he is one of a vast profession, with common opportunity and common responsibility, and the dignity of his calling in life rises to a plane than which none is higher in the world's activities. The physician is forever in public life, never out of the public eye, and can never be free from the obligations that attach to his opportunities for influence. To have spent such a life well, to have made the years fruitful, not alone in soothing the struggle of the physical life with adverse fortune, but to have taught quietly the lessons of a pure life and an unselfish labor for others, and to have lifted men out of barren thought to exalted aspirations, is a glory for any man. And this crown is within the grasp of any physician. The retrospect of such a life, after its activities are over, cannot fail to be consoling. The profession of medicine may well be proud to hold such lives in fragrant memory.—*Brooklyn Medical Journal*, June, 1888.

Medical Education in Spain.—On May 27th the first stone of the new buildings of the Faculty of Medicine was laid at Barcelona. In addition to liberal accommodation for teaching and original scientific work, they will include a hospital expressly designed for clinical instruction. The site has been given by the town, and the Spanish Government has made a grant of one million dollars for building purposes.—*British Medical Journal*, June 30, 1888.

Dr. Carl Kilcher, assistant at the pathologo-anatomical department of the University at Prague, died recently of blood-poisoning, a result of the inoculation of blood from a typhus fever patient for scientific investigation.

Dr. F. W. Hagen, court physician, and recently professor of psychiatry and director of the mid-Franconian District Insane Asylum, died at Erlangen, at the age of seventy-four.

The University of Utrecht has lost not only Professor Donders, who has just passed his seventieth birthday, but also Professor Koster, who, for more than twenty-five

years, has ably occupied the chair of anatomy. The latter has resigned on account of failing health, and his resignation has been accepted. Dr. Th. W. Engelmann, formerly professor of histology and experimental toxicology, has been elected to the chair of physiology; Dr. C. A. Pekelharing, formerly professor of general pathology and pathological anatomy, to the chair of histology and experimental toxicology; Dr. H. H. Sprouck, formerly lecturer on anatomy, to the chair of general pathology and pathological anatomy; and Dr. E. Rosenberg, formerly professor in ordinary at the University of Dorpat, to the chair of anatomy.

A New Alkaloid in Tea.—At the meeting of the Berlin Physiological Society on June 8th, Professor Kossel reported on a new base, discovered by him, in extract of tea. Caffeine is the only definite chemical base hitherto isolated from tea, and to it are ascribed many of the effects of tea. Professor Kossel has found another base in very small quantity, having the composition $C_7H_8N_4O_2$, upon which he has bestowed the name "theophyllin." It is isomeric with the base obtained from cacao (theobromine), and with paraxanthin obtained from urine by Salomon, but differs from these substances by its reactions. The introduction of a methyl group into theophyllin converted it into caffeine, and as the latter is proved by E. Fischer to be a trimethylxanthin, the former is evidently a dimethylxanthin. Investigations into its physiological effects will be made.—*British Medical Journal*, June 30, 1888.

Narceine. — Laborde and Duquesnel, at a recent meeting of the French Academy of Medicine, reported experiments with this substance, a constituent of opium, first studied by Bernard. A combination known as meco-narceine is most soluble. Narceine is said to be without the unpleasant effects of morphine.—*Revue Gén. de Clin. et de Thér.*, May 10, 1888.

A Medico-legal Case. — The following case of suicide which recently occurred in Jamaica presents features of considerable interest and no little importance. A colored man, after murdering his sweetheart, entered his house, and cut his throat with a razor. Some of the neighbors who had witnessed both deeds rushed into the house, but were unable to find him. After a search, his dead body was found under the house, which was a small one, built on supports, raising it about two feet from the ground. After cutting his throat, the man must have walked or run to the back entrance, a distance of sixteen feet, and then have crept through a hole in the partition, and have crawled on all fours to the spot where his body was found, exactly beneath the room where he cut his throat, and, therefore, a further distance of sixteen feet. The throat was cut from ear to ear by a clean sweep, both carotids and jugulars being severed, as well as the trachea and œsophagus, the wound reaching back to the anterior portions of the bodies of the cervical vertebræ. A blood-stained razor, which was deeply notched, was found in the room, and marks of blood were traced from the room to the back entrance by which the man must have gone out.

Dr. Cargill, who examined the body soon after death, and to whom we are indebted for a report of the case, was asked by the coroner if it was possible for a man to have traversed the thirty-two feet after inflicting such wounds on himself; to which he replied by declining to controvert, as a mere matter of medical opinion, facts that had been sworn to by reliable eye-witnesses. Remarkable instances of the retention of voluntary power after wounds of the carotid artery have been occasionally recorded, but we know of no occasion on which the vessels on both sides of the neck were divided, where so much power was retained by the subject of the injuries as in the present instance. The case should serve as a perpetual warning to medical men not to be too dogmatic as to what is, and what is not, possible even in the presence of the most rapidly fatal wound.—*British Medical Journal*, June 30, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 17 TO JULY 23, 1888.

McPARLIN, THOMAS, *Surgeon* (U. S. Army).—Leave of absence extended one month.—Par. 10, *S. O. 160, Department of the Platte*

WOLVERTON, WILLIAM D., *Surgeon* (U. S. Army).—Leave of absence extended twenty days.—*S. O. 142, Headquarters, Division of the Atlantic.*

DEWITT, CALVIN, *Major and Surgeon* (U. S. Army).—Leave of absence extended one month.—*S. O. 159, A. G. O.*, July 11, 1888.

BANISTER, WILLIAM B., *Lieutenant and Assistant Surgeon.*—Leave of absence extended twenty-seven days.—*S. O. 157, A. G. O.*, July 9, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JULY 14, 1888.

MARTIN, WILLIAM, *Assistant Surgeon.*—Ordered to Marine Rendezvous, San Francisco, Cal., and to attend officers of the Navy and Marine Corps not otherwise provided with medical aid.

AUZAL, E. W., *Assistant Surgeon.*—Detached from duty at the Marine Rendezvous, San Francisco, Cal, and special duty there, and ordered to the Naval Academy.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JULY 16, 1888.

BAILHACHE, P. H., *Surgeon.*—To proceed to Delaware Breakwater Quarantine Station as inspector, July 6, 1888.

FESSENDEN, C. S. D., *Surgeon.*—Leave of absence extended thirty days on account of sickness, July 14, 1888.

PURVIANCE, GEORGE, *Surgeon.*—To proceed to Chattanooga, Tenn., as inspector, July 6, 1888.

SAWTELLE, H. W., *Surgeon.*—Granted leave of absence for twenty-three days, July 9, 1888.

McINTOSH, W. P., *Assistant Surgeon.*—To proceed to Galveston, Texas, for temporary duty, July 14, 1888.

PETTUS, W. J., *Assistant Surgeon.*—Granted leave of absence for thirty days, July 16, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, JULY 28, 1888. NO. 4.

ORIGINAL LECTURES.

THE CEREBRAL PALSIES OF CHILDREN.

Clinical Lectures delivered at the Infirmary for Nervous Diseases.

BY WILLIAM OSLER, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA, PHYSICIAN TO THE PHILADELPHIA AND UNIVERSITY HOSPITALS AND TO THE INFIRMARY FOR NERVOUS DISEASES.

LECTURE III.

BILATERAL SPASTIC HEMIPLEGIA.

SYNONYMS.—Spastic rigidity of the newborn (Little). Tonic contraction of extremities. Essential contraction. Spastic rigidity. Permananter Kinder-tetanus (Stromeyer). Spastic paralysis of children (Adams). Spastic diplegia (Gee). Spasme musculaire idiopathique (Delpech).

We have seen that in infantile hemiplegia a great majority of the cases occur within the first three years of life, and in only a limited number is the condition congenital, either the result of intra-uterine disease or of accident during parturition. In bilateral hemiplegia and in paraplegia the reverse holds good; in a large proportion of the cases the trouble dates from birth, and is the result of injury to the child during its passage into the world. Hence the appropriateness of the term birth palsies, applied to these cases by Gowers. Strictly speaking, these cases should be considered together, as they depend on essentially similar conditions, and we may find the arms so slightly affected that it is difficult to say whether the case is one of diplegia or paraplegia; but there is a sufficient number of clearly defined cases in each group to make a division advisable, and there are questions relating to the spastic paraplegia of children which deserve separate consideration.

To the orthopœdic surgeons we owe the greater part of our knowledge of these cases. Heine[1] understood them thoroughly, and to him, I think, belongs the credit of first recognizing their cerebral origin, and separating them from the ordinary infantile paralysis. He clearly distinguished cases of hemiplegia cerebralis spastica and paraplegia cerebralis spastica, using these expressive names which have since been employed with minor modifications by Benedickt, Bernhardt and others. At page 163 of his monograph is also to be found, perhaps the first, certainly a most accurate, account of post-hemiplegic movements.

Little, the well-known London orthopœdic surgeon, has contributed more than any one to the subject, and to him we owe, in great part, the accurate knowledge of the relation of the cases to abnormal parturition. His paper in vol. iii. of the London Obstetrical Society's *Transactions*, 1862, contains an immense amount of material. The clinical description which he gives at pages 301–303 has not been excelled. In France the cases of spastic rigidity are sometimes called Little's disease (maladie de Little). The writings of Delpech,[1] Stromeyer[2] and Adams,[3] particularly of the latter, to whom we owe the name spastic paralyses of children, contain careful descriptions; and more recently Rupprecht[4] has considered the subject from a surgical standpoint.

Bilateral hemiplegia is characterized by a spastic condition of the extremities, dating from or shortly succeeding birth; occasionally following the specific fevers or an attack of convulsions. The legs are more involved than the arms; there is no wasting; no disturbance of sensation; the reflexes are increased. The mental condition is profoundly disturbed; the patients are usually imbeciles or idiots, helpless in mind and body. Ataxic and athetoid movements of the most exaggerated kind may occur.

Anatomically there is bilateral sclerosis or porencephalous defect of motor areas of the cortex cerebri.

Case I.—Anna S., æt. three and a half years. First child; no instruments used in labor; full term. An "inward convulsion" on tenth day; lay for three days apparently dead. First teeth came at sixth month. Child has not progressed well. Head seventeen and a half inches in circumference.

February 29, 1888. Aged now six years; says only "mamma," "papa" and "no." Strabismus, no nystagmus. Has thriven and grown, understands everything. Head long and narrow; biparietal diameter five inches; occipito-frontal six and a quarter inches; circumference eighteen and a half inches. Face blank, but laughs. Conjunctivitis; teeth bad. Uses hands to eat; arms stiff at elbows. Legs stiff in extension. Well nourished. When cries gets very rigid. Pes equino-varus. Feet cross when attempts to stand; cannot walk; knee-jerk +, no clonus.

Case II.—Amelia P., æt. fourteen months. M. 5, 423. Born at seven months; no instruments; reason assigned for miscarriage carrying a heavy weight. First child. Great weakness noticed at birth, but nothing else; child very small; no spasms; has never had any serious illness; has never cut any teeth; never walked; never talked, except for the last two months to say "papa" and "mamma." Convergent strabismus. Never has had any skin eruption. Keeps the legs crossed. Recognizes the parents; does not fix attention; does not sit up well; wabbles the head about. Knee-jerk ++. Plantar reflex

[1] Spinale Kinderlähmung, zweite Auflage, 1860.

[1] Orthomorphie, Paris, 1828.

[2] Stromeyer: Handbuch der Chirurgie, Bd. ii.

[3] Adams: Club-Foot, London, 1866.

[4] Rupprecht: Ueber angeborne spastische Gliederstarre und spastische Contracturen, Volkmann's klin. Vorträge, No. 198.

+. Head microcephalic, symmetrical; fontanelles closed; circumference of head seventeen and a half inches; occipito-frontal diameter six inches; biparietal diameter five and a half inches; bridge of nose sunken. Arms and legs stiff, moves them with freedom; takes things with the left hand, does not grasp well; right arm especially stiff at shoulder and elbow; while under observation legs stiffened in extension; in the interval the legs can be extended and flexed easily; stands fairly well when supported.

Case III.—Everett A. P., æt. five years. Parents alive and healthy; no nervous diseases in family. This child is the oldest of three. Born at seven months; no instruments; small, very weak, jaundiced. Noticed stiffness when only a week or two old, in legs and arms; has never walked. Does not know his letters. Never had a spasm; had scarlet fever. Hands have always been free from spasm; elbows stiffer sometimes than at others. Temper not very good. *Status præsens:* Legs; color, temperature, nutrition good. Knees, ankles and hips stiff; cannot walk, when supported stands on toes with legs crossed. Spasm in facial muscles at times. Knee-jerk +. Can use hands well; elbows stiff. Cremasteric and abdominal reflexes present. Spine straight. Phimosis; teeth fair. No nystagmus. Bright, talks well. Head—biparietal diameter five and a half inches; occipito-frontal seven inches; circumference nineteen and three-quarters inches. In bed sits with spine doubled, cannot sit up straight.

Case IV.—Florence S., æt. four years. M. 5, 137. No forceps used. No trouble during pregnancy. Five older children. Father and mother healthy. Nothing special about child at birth; nursed well. Spasms on the second day. Has not walked or crept. Does not talk; understands what is said. Is well nourished; fairly well grown child; looks bright, and is fairly intelligent, though expression is spoilt by the constant dribbling from the open mouth. Head wabbles from side to side. Head measures nineteen and a half inches in circumference, and is symmetrical. Sutures closed, and a little ridged in their course. Arms not well developed, and are stiff, but can be readily flexed at elbows, wrists and fingers. Gets so stiff at times that she can be lifted without bending. Arms stiffen in extension. Moderate grasping power. Knees and thighs can be flexed, abducted and adducted. Like arms, they stiffen and get hard. Cannot walk. Plantar reflexes not marked. No ankle clonus. Knee-jerk +. Teeth much decayed. No convulsions now. Sleeps well, but will not sleep in the dark, and awakens at once if light is removed.

February 4, 1888. Will be six years old in August. Is small for her age. Does not get so stiff now, only once or twice a day, not, as before, a dozen times. Very characteristic posture of legs—feet extended and legs crossed. Stands on toes, generally on right foot, with the left leg diagonally across the right. Holds her head better; is not so cross. Hands get stiff, and fingers separate and extend when she attempts to take anything.

Case V.—Jennie S., æt. ten years. M. 7, 177. Labor difficult. Head much flattened in birth, and child was unconscious for half an hour. First child. Second died at four years from accident. Mother thinks child always used arms and legs with difficulty. Never learned to walk or use the hands. Dentition natural. Intellect deficient, yet understands ordinary conversation. Has not learned anything. Knee-jerk ++; muscles rigid; arms and legs almost contractured. Color pale, appetite good, sleeps well. Bowels regular. Heart normal. Lower jaw retreats: Occipito-frontal diameter, six and a half inches; occipito-mental diameter, eight and a quarter inches; biparietal diameter, five inches.

Case VI.—Lydia B., æt. two years and three months. M., 158. Elder of two children, other healthy. Born without instruments. Head slightly microcephalic. Biparietal diameter, four and three-quarters inches; occipito-frontal, five and a half inches. Fontanelles closed. Forehead prominent in central portion. Internal strabismus. Mouth open, no dribbling. Intelligence poor, speaks little, smiles and looks intelligent. Dentition began at six months, last tooth is being cut now. Arms stiff, especially left. For a time kept left hand closed. Legs stiff, slight extension of feet. Tendency to talipes equinus, legs flexed with difficulty, sits with legs crossed. Never has used legs properly; they are thin and cold. *Electrical examination:* Quantitative change, but no reaction of degeneration; had a spasm soon after first visit; tendon reflexes increased.

Case VII.—Nellie M., æt. six years. M. 5, 291. Mother died of phthisis; one child died at eleven months, of convulsions, while teething. This child is one of twins, the other born dead. Some defect noticed at birth; teething natural. Never had convulsions. Never has been able to sit up or walk; has to be fed. Right hand weak and small, can take some things in it. Both shoulders stiff, a little pressure relaxes them. Thighs are crossed. Legs have clasp-knife rigidity; left leg crosses right; this position is nearly constant. Legs can, however, be placed side by side; right leg decidedly larger than left. Foot strongly extended on leg; ankle-joint cannot be flexed. Knee-jerk ++; no ankle clonus. Expression idiotic; speaks no word; temper bad; mouth open; constant dribbling; does not cry much. Head microcephalic, supro-orbital arches marked. Face prognathous. Forehead low, narrow; does not support head, but it wabbles from side to side. Circumference of head, seventeen and a half inches. Chest rickety, costal margins everted; sternum depressed; antero-posterior and lateral spinal curvature. Convergent strabismus, nystagmus.

Case VIII.—Harry B., æt. one year. M. 5, 168. One brother said to have some brain trouble, one died in a convulsion at the age of three years, one died of congestion of brain. Two other healthy children. Fourth child; labor natural. Was backward about walking. Since summer of 1885 has twitched hands and feet. Head symmetrical, measures nineteen inches; expression bright and intelligent. Temper good. Makes no sounds, seldom cries. Uses his hands well; at times clinches hands and folds them over heart, and they get stiff. Eyes turned a little. Moves feet with a slight spasmodic movement. Legs cross when at rest, when he is lifted they get stiff.

Case IX.—Wm. R., æt. two years. M. 4, 33. Family history good. Mother had a severe fall five months before child was born. Never has had any children's diseases. Is moderately well nourished. Special senses perfect; dull, stupid, never says anything except "mamma." During last year has had frequent attacks, in which face grows at first scarlet, then purple, and finally white. Attacks last from two to three minutes, during which he works mouth and twists lips. There is entire loss of consciousness. Does not bite tongue or froth at mouth;

attacks occur in daytime; sleeps after them. Independently of these attacks during the day he has repeated spasms of the muscles at the back of the neck, and the head is drawn into complete extension. There is a constant spasm of the left thumb, which is drawn across the palm of the hand. Arms stiff. Legs tend to cross when he is held erect, but can be spread apart by force; great difficulty in flexing the legs when they are in spasm. Cannot stand alone, and has never walked more than two or three steps. Uses hands but little, holds objects in an awkward manner, and cannot feed himself. Still nurses, but takes other food. Slight nystagmus. Dribbles constantly. Sleeps well, but starts at sounds; is constipated.

Case X.—Morris C., æt. three years. M. 4, 122. First child; labor lasted eleven hours; instrumental. Father thinks mother was frightened when half way through pregnancy. Child's body was black when born. He cried continuously for one week after birth. When he began to move, parents noticed his movements were awkward. Cannot sit up. Has no fits now; is said to have had them last fall. Appetite and sleep good; shows signs of intelligence. Eyes squint internally. February 15, 1888: Returns to-day. Is now eight years old. General health has been good; no convulsions; has not been able to sit up, nor walk; lays on stomach in cot-bed most of the time; cries very little, temper good; can scarcely talk, says a few words—*e.g.*, "home," "all right," "hello." Looks fairly bright and intelligent, understands what is said. Head not quite symmetrical; left parietal and left frontal eminences most marked. Biparietal diameter, five inches; occipito-frontal diameter, seven and one-quarter inches; circumference of head, nineteen and a half inches. Eyes bright, clear, slight convergent strabismus; pupils medium size, react to light, vision seems good. Makes irregular movements of lower muscles of face; opens mouth, and utters unintelligible sounds. Has difficulty in supporting head, which wabbles from side to side. Does not appear to be distinct spasm of these muscles. Back much turned to right. No wasting; body is thin. Hands are held closed, opens them sometimes; thumb inverted, and fingers usually closed over it; is unable to grasp anything. There are constant, large, irregular movements of arms; distinct spasm in arm; very difficult to extend forearm. Right thigh constantly drawn up in semiflexed position; leg flexed on thigh; left leg extended, foot inverted, great stiffness; muscles of legs fully developed, but firm. Knee-jerk +; no ankle clonus. Teeth good, getting second set.

Case XI.—Thos. McG., æt. four years. M. 5, 195. One of three children. No phthisis in family. Born naturally, and seemed healthy. Measles at three months, followed by hydrocephalus; head continued to increase in size till one year old; circumference twenty-three and a half inches. Dentition normal. Talked at an early age and seemed quite bright. Never walked, but can kick legs; legs spastic on standing, toes extended, muscles tight, feet crossed, legs relaxed when at rest. Knee-jerk + +. Hands shake and arms are stiff.

Case XII.—Elsie J., æt. one and a third years. M. 5, 216, Roxborough. Youngest of two children, the others perfectly well. Labor natural and not difficult. Never had convulsions; no definite onset. Head microcephalic, measures seventeen and a quarter inches in circumference; furrow in temporal region; sutures closed for some time; transverse diameter above ears four and a half inches; occipito-frontal, six inches. Dentition retarded. Has upper incisors and lower central. Seems bright and notices objects. No nystagmus. Fairly well nourished. Arms stiff at elbows and shoulders; knee-jerk +. Legs were noticed to be stiff soon after birth; not well developed; never walked; on standing rests on toes (Fig. 1);

FIG. 1.

Position of child when supported.

knife-clasp rigidity; strong adduction; sometimes crosses legs; some eversion of feet; attempts to walk; seems to have more power on left side. January 31, 1887: Supposed to have had spasms about a year ago; was three years old last December. Arms and legs remain stiff. Child has not developed mentally.

Case XIII.—Willie L., æt. six years. One child stillborn; one, aged two weeks, died of marasmus. Born with instruments; had fits as soon as born, lasting for three days; moved arms and legs, but not so well as other children; never able to sit up till one year old; began to talk at two years; sat up and held up head at eighteen months; right hand contracted till second year; dragged the right hand in creeping; stood at three and a half years; cannot stand now without support. Intellect bright; speech affected, has difficulty in pronouncing words. Fits again two years ago, after improper food. Healthy but small. Back straight; walks on toes; legs small below knees; skin and tissues adherent; contraction of tendo Achillis, which can easily be overcome. Legs cold; in walking toes of left foot turn in; left hand rather the larger; both arms stiff.

Case XIV.—Fred. H., æt. three years. M. 7, 58. Parents healthy, five other children, all well. Looks bright; understands everything. Born at seven months; no instruments; nursed by mother. Has never sat up, crawled or walked; is now just beginning to say a few words. Restless and irritable; constantly throws himself backward. Hands and arms contracted and stiff, and in

constant motion; makes an offer to take things, but can scarcely take anything to his mouth as the arms are so stiff, left more than right; feet are at times everted (*i. e.*, valgus), then the toes are flexed and extended. Knee-jerk difficult to obtain; no ankle clonus; spasm gets less when once overcome by motion; teeth good; no nystagmus. Biparietal, four and three-quarters inches; occipito-frontal, seven inches; occipital region very prominent; circumference nineteen and a quarter inches. He has been sick lately with fever; is now very pale; at times gets very stiff arms and legs; hands and fingers extend and get rigid; uses left hand most; can scarcely grasp an object. Has had two slight convulsions, limited almost entirely to face and mouth, first last fall (1886), second in March, 1887.

Case XV.—Ralph W., æt. three years and six months. In Pennsylvania Institute for Feeble-minded Children. Idiot; no history; unable to walk or talk. Head microcephalic, circumference sixteen and a half inches, with the hair; no nystagmus; does not dribble; teeth good; arms rigid, and become more so on the slightest touch; irregular movements in fingers, but how much voluntary and how much involuntary, it is difficult to say; legs in extreme spasm, slight equino-varus position; the feet can scarcely be moved, so firm is the extensor spasm; the whole pelvis moves on attempting to flex the thighs.

A class of cases belonging to this division of bilateral hemiplegia is characterized by *spasm and disordered movement*. They are described in literature as *chorea spastica and double athetosis*. The cases I refer to are simply spastic diplegias, plus post-hemiplegic disorders of movement. The history is the same as in ordinary cases; the trouble has persisted from birth or shortly after, and there is a condition of feeble-mindedness or idiocy, though in some instances the intelligence is fair. Very often, too, there has been a difficult labor.

Of the chorea spastica, the following are probably illustrations:

Case XVI.—Mary M., æt. four years. M. 4,429. Breech presentation, delay at the head, was six hours before she was resuscitated. Began to talk at two years; never walked; almost from birth she has had peculiar movements of hands and arms; the thumbs are turned in and there is constant irregular motion of the arms and hands, with stiffness, which is made worse when she attempts to control it; it is like a chorea. There is also some incoördination of the head. She is well nourished; no wasting. Coördination of legs good; but she does not walk.

Case XVII.—Nellie P., æt. nine years. I. P. b., 55. Parents healthy, five children dead, of seven. Seven years ago had fits while teething, had fits constantly for twenty-one days; for nine months had seven to nine per diem; in very weak health when fits ceased. *Present state:* Speech hesitating; memory not affected; unable to stand, sit, feed herself or assist herself in any way; can move every muscle in the body, but with an irregular movement which prevents her using any group of muscles; the movement is choreoid; in attempting to grasp an object the fingers are thrown out in a stiff, spasmodic and irregular manner, and she is unable to close them over the object.

I do not mean to infer that all cases of so-called congenital chorea come under this designation; there are instances without spastic rigidity, as the case reported by Dr. Sinkler from this hospital.[1] Certain of these cases of congenital chorea have also had definite athetoid movements.[2]

There are several reports of children in the Infirmary records with the diagnosis of multiple seclerosis, which in many respects resemble these cases, and it would doubtless often be difficult to make a differential diagnosis.

Bilateral athetosis is not very uncommon; an illustration may be found in almost every almshouse or home for incurables. It is one of the most distressing of all maladies to witness, and is usually associated with imbecility.

The following cases illustrate the combination of spasm with disordered movement characteristic of this condition.

Case XVIII.—William B., æt. thirty. In the Elwyn Institution for eight and a half years. History: Had jaundice when eleven days old, after which the paralysis occurred. *Status præsens:* Intelligent looking; head well formed. Does not speak, but utters a loud, deep-toned sound when he is pleased. Sits up, but in a sloping position. Cannot stand. Continual grimaces, caused by irregular movements of the lower face muscles. Head is turned forcibly from side to side and the mouth drawn and hideously distorted. Arms very stiff, not wasted; are quiet at times, but every few minutes the most irregular movements; the arms and forearms stiffen in extension, the hand flexed, and the fingers in rapid, continuous spasm. At times is quite quiet and can even feed himself. Sits usually with his wrists strongly flexed on the bench, as if helping to support himself. The motions of the fingers are typically athetoid; those of one hand will be flexed on the palm while the others are in active extension. As he feeds himself the spasm is very great, and it is with much effort that the mouth and hand can be made to meet. The index finger may be strongly flexed while the middle is in extreme extension. The legs are stiff, strongly adducted. The feet are in extension in equino-varus position. The knee-jerk is obtained with difficulty. He is good-tempered and smiles; knows the attendants and makes signs as to his wants.

Case XIX.—Laura C., æt. twenty-one. The fifth child. A hard labor, but no instruments used. When born there was "no sign of life in her," and for an hour she was blue. The mother is a large, well-built woman; the family history is excellent. At six months the child had whooping-cough; seemed weak before this, but after the attack grew much worse; could not sit up and could not help herself like other children. From infancy she has had irregular movements of the arms and legs, with stiffness. Learned to talk late; is intelligent and good-tempered. She was brought to the infirmary when eleven years old. When seen recently at home she presented the following condition: a medium-sized girl, pale, but with an intelligent face. Sits in a chair supported by cushions. She answers questions in an interrupted, somewhat high-pitched voice, a little difficult to understand at first. Mentally is quite bright; appreciates her condition, and said she was a "little Job." Likes to be read to and to play with the children. She has never walked, and is quite helpless on account

[1] System of Medicine; edited by Pepper. Vol. v., Phila., 1886.
[2] Rau: Neurologisches Centralblatt, 1887.

of the extraordinary rigidity and irregular movements of the extremities, which are excited by emotion or by any attempts at voluntary efforts. The facial muscles move spasmodically as she speaks. When pleased she laughs in a loud, rough manner, with the mouth widely opened, the jaw strongly depressed, so that the uvula and palate are freely exposed. The arms are well nourished and are held in strong extensor spasm; the left is rotated inward and rigid; the forearm is so strongly extended that there is almost an anterior dislocation of the elbow-joint. At the same time there is extreme rotation of the radius and the hand, the fingers of which are clinched so tightly that it is impossible to separate them. The right arm is less strongly contracted, and with it she can make attempts to grasp objects. The spasm relaxes every few moments and the limbs assume new attitudes. The fingers relax and close, but without that continuous, orderly spasm seen in typical athetosis. The shoulder and trunk muscles are also affected, and their irregular contraction moves the trunk about from side to side. The legs are strongly extended, the feet in the equino-varus position. There is not much movement, but on testing the reflexes there were sudden spasmodic jerkings, and at times the knees are drawn up. The muscles in spasm have an iron-like rigidity, and it is almost impossible to bend the limbs. When not excited she is much quieter and the muscles relax; but the slightest exertion brings on the spasms. She can sometimes, with the left hand, pick up objects and even carry a biscuit to her mouth, but she is quite unable to feed or help herself. The arm and leg reflexes are increased; the ankle clonus is readily obtained. Sensation perfect; the most extreme spasm gives no pain. There are no trophic changes. Her appetite is good and she sleeps well, the contractions disappearing completely. The bodily functions are well performed.

Some of these cases were able to walk, and in all the hands were used awkwardly, or not at all. The legs are most affected, usually extended, the feet crossed and in the pes equinus or equino-varus position. The thighs are often strongly adducted—the so-called clasp-knife rigidity. When the child sits the legs cross, and, if supported, there is the characteristic attitude of infantile spastic paraplegia, the feet crossed and the body supported on the toes. In Case X. the right thigh was drawn up; sometimes the legs are partially flexed, but, as a rule, the extension position is maintained. The stiffness is in some cases constant, while in others it varies greatly and is increased when the child cries, or in attempts to move. It may be more marked on one side than on the other. The whole body may at times become rigid, and, as Little remarks, is turned "all of a piece" on the lap. The arms are usually flexed, and the stiffness is at once apparent on attempting to extend them. It may be difficult or impossible to raise the arms or to abduct them. The hands may be clenched and the fingers strongly flexed, but it is rare to see the extreme spasm which is so common in hemiplegia; and, as the reports indicate, a majority of the children could use the hands, though awkwardly; while in Case III. the movements were almost natural. There may be, as in Case X., large, irregular movements of the hands.

Spasm of the muscles of the face or tongue was rarely noted. In Case X. there were irregular movements of the facial muscles; and a condition of rigidity was at times present in the facial muscles. The spasm is not always fully relaxed during sleep, but disappears when the patient is fully etherized. The back and neck muscles are weak, and the child is rarely able to sit up alone. The spine in some cases seems to have remarkable flexibility, and mothers have used more than once the expression that the child was as "limp as a rag." So helpless, indeed, is the condition of many cases that unless in bed they must be in the lap. The feeble neck muscles are unable to support the head, which rolls from side to side or sinks on to the chest. The muscles were firm and hard, not often marked wasting.

In no case was sensation impaired.

The reflexes were increased in all these cases, particularly the knee-jerk. The ankle clonus cannot, as a rule, be obtained.

The electrical conditions in the cases tested were unchanged.

With the exception of Case III., the children were either idiots, without a glimmer of intelligence, or imbeciles. The facial expression usually indicated the mental deficiency. The open mouth, constantly dribbling saliva and lolling tongue were present in the majority of the cases. Only two of the children could speak plainly, thirteen could not talk at all and four could say only a few simple words. With the exception of two or three cases, they all seemed to be able to understand, more or less, when spoken to by their mothers. Irritability of temper was complained of very much.

Microcephalus is a very common condition with asymmetry, and in several of the cases the head was very broad above and behind the ears.

In two cases nystagmus existed, and in three strabismus.

As is so common in imbecile children, the teeth were defective, a condition to which Dr. Alice Sollier has recently devoted a special monograph.[1]

Only two children had epilepsy, Case IX., subject to attacks of *petit mal*, and Case XIII., which had two spasms in which the face twitched, and the child seemed to lose consciousness. Cases I. and IV. had had convulsions after birth, and Case X. had fits at two years of age.

Of these nineteen cases the youngest at the time of application was one year and the oldest ten. Six were first children; three were born at seven months; in three cases the labor was prolonged, in two of which forceps were applied; one was a breech case. In eight cases the labor is stated to have been natural.

In ten of the cases the condition was probably congenital, as there was no definite onset, and the stiffness was noted early. In Case I. there were convulsions on the tenth day, and the child was unconscious for three days. In Case VI. the head was much flattened by the forceps, and the child could not be roused for half an hour. In Case X., also, the child was delivered with forceps, was asphyxiated when born, and cried for a week. In Case XI. the child had measles at three months, which was followed by hydrocephalus and the gradual development of a spastic condition.

I have been able to collect the reports of sixteen autopsies in cases of bilateral spastic hemiplegia in children;

1 De l'état de la Dentition chez les Enfants Idiots et Arriérés. Paris, 1887.

the youngest was two years old, the oldest thirty. The anatomical condition in these cases was as follows: Case I. F., æt. five years (Kundrat[1]). Bilateral porencephalus, motor regions. Case II. (Henoch[2]) M., æt. six. Atrophy, frontal convolutions. Case III. (Heubner[3]) æt. two and one-half. Atrophy of left central and right parietal convolutions. Case IV. (Ross[4]) F., æt. two and one-half. Bilateral porencephalus. Case V. (McNutt[5]), F., æt. two and one-half. Bilateral atrophy, central convolutions. Case VI. (Richardiere[6]) F., æt. two and one-half. Sclerosis of temporo-occipital and parietal gyri on both sides. Case VII. (Isambert and Robin[7]), æt. two. General cortical sclerosis of both hemispheres. Case VIII. (Bourneville[8]), æt. ten. Extreme sclerotic atrophy in both hemispheres. Case IX. (Bourneville[8]), æt. nine. Bilateral atrophy of convolutions, particularly the central gyri. Case X. (Blanchez[9]) F., æt. five. Atrophy of posterior lobes of both hemispheres. Case XI. (Simon[10]), æt. two and one-half. Sclerosis of central convolutions. Case XII. (Bourneville[8]), æt. five and one-half. Foci of sclerosis in frontal and temporal lobes. Case XIII. (Ashby[11]), æt. twenty-two months. General atrophy; surface of hemispheres smooth. Case XIV. (Moore[12]), æt. five. General cortical sclerosis. Case XV. (Gee[13]) F., æt. eleven. General cortical sclerosis. Case XVI. (Mierzejewsky[14]), æt. thirty. Double porencephalus.

A more detailed account of Dr. Sarah J. McNutt's case will illustrate the condition which exists in the majority of these patients. The child, two and one-half years old, had been delivered with instruments and had convulsions during the first nine days of its life, and for a long time did not seem to have any muscular power. When first observed there was paresis with rigidity of all the extremities, and the child was defective mentally. Death occurred from gastro-intestinal catarrh. The brain was studied by Dr. William H. Welch, who has given a very full description of the coarse and microscopic appearances. There was atrophy in each hemisphere of the paracentral lobule, of the central convolutions and of the roots of the three frontal convolutions. Microscopically the cortex of the affected convolutions was replaced by a finely fibrillated tissue, rich in nuclei and without ganglion cells and nerve fibres. There was typical bilateral secondary degeneration of the pyramidal tracts in the pons and medulla and cord. In the pons most of the bundles of the longitudinal fibres were degenerated, in the medulla the sclerosis was confined to the anterior pyramids, and in the cord the degeneration involved the direct and pyramidal fasciculi on both sides. The ganglion cells of the anterior horns were normal in number, size and general appearance.

Destruction of the motor centres of the cortex is, then, the essential lesion in bilateral spastic hemiplegia. Diffuse atrophic sclerosis is the most common condition; a patchy sclerosis has been found in some cases; porencephalia in others, while in Ashby's case there appears to have been arrest of development, as the surface of the hemispheres was smooth and sclerotic. Descending degeneration has been found in the pyramidal tracts in the cases of McNutt, Jules Simon and Ashby. In the majority of the cases there was no report as to the condition of the cord. In Ross's case the cord did not show any changes.

Voisin[1], in 1884, communicated to the Paris Academy of Medicine a note on the morbid anatomy of five cases of this kind. No details were given, merely the statement that the condition was caused by arrest of development and atrophy of the central gyri. I have not been able to find a full report of his paper.

[1] Kundrat: Die Porencephalie, 1882.

[2] Henoch: Lectures on Diseases of Children. American edition, 1882.

[3] Heubner: Berliner klinische Wochenschrift, 1882.

[4] Ross: Brain, vol. v.

[5] McNutt: American Journal of Medical Sciences, 1885, i.

[6] Richardiere: Etude sur les Scleroses encephaliques primitive de l'enfance. Paris, 1885.

[7] Isambert and Robin: Quoted by Wuillamier. Sur l'epilepsie dans l'hemiplegie infantile. Paris, 1882.

[8] Bourneville: Quoted by Wuillamier.

[9] Blanchez: Quoted by Wuillamier.

[10] Simon: Revue mensuelle des maladies de l'enfance. Tomes, i. and ii.

[11] Ashby: British Medical Journal, 1886, i.

[12] Moore: St. Bartholomew's Hospital Reports, xv.

[13] Gee: St. Bartholomew's Hospital Reports, xvi.

[14] Mierzejewsky: Archives de Neurologie, tome i.

ORIGINAL ARTICLES.

A CASE OF POTT'S DISEASE, PRESENTING IN THE ARMS SYMPTOMS RESEMBLING THOSE OF LOCOMOTOR ATAXIA, AND IN THE LEGS THOSE OF SPINAL SPASMODIC PARALYSIS.

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IN THE MEDICAL NEWS of April 21, 1888, Dr. S. Weir Mitchell published a very interesting account of a case of "locomotor ataxia confined to the arms." The following case bears some resemblance to that of Dr. Mitchell's, but in many respects it differs from it and from any case which I have been able to find reported.

P. Z., aged thirty-four, single, a cooper by trade, entered St. Peter's Hospital, December 9, 1887. He had always enjoyed good health till twelve years ago, when he had a fever, from which he made a good recovery, and continued well till two years ago, when he was obliged to give up work on account of a severe pain in his back between the shoulders. During the past two years he has gradually grown weaker, but was able to walk without assistance till two months ago, since which time he has felt as though there was a tight band about the abdomen, and has been unable to walk without the aid of a chair. He has been much troubled by pains in his arms, he sometimes sees double, and when he walks he is dizzy. He is constipated, and micturition is a little sluggish at times. No venereal history.

Patient is a well-nourished man. He sits with his head bent forward, and raises it with difficulty. Pupils are dilated and equal. No paralysis or abnormality in the domain of any cranial nerve. There is a fair amount of strength, moderate anæsthesia

[1] Bulletin de l'Academie de Médecine, 1884.

and analgesia, and very decided ataxia and loss of muscular sense of arms and hands. No anæsthesia of legs and feet. Muscles of legs weak. He cannot walk without assistance. Very slight, if any, ataxia of legs. Knee-jerk and ankle-clonus greatly exaggerated; so that a slight tap on the ball of one foot causes both legs to tremble and shake violently for a long time, presenting a beautiful example of the so-called "spinal epilepsy." Plantar and cremasteric reflexes increased, umbilical reflexes faint. No atrophy of the muscles of either arms or legs. The spinous processes of the second, third and fourth dorsal vertebræ are decidedly prominent, and that of the fourth is tender. Dr. S. R. Morrow, the attending surgeon of the hospital, having examined the spinal deformity, pronounced it an undoubted case of Pott's disease.

Jan. 19. Patient is rather worse. The cranial nerves continue to be unaffected. There is a fair amount of strength, complete anæsthesia and almost complete analgesia and a great degree of ataxia of arms and hands. When the patient is asked to touch his nose while his eyes are shut, he is quite as likely to touch his ear or his shoulder. Absolute loss of muscular sense; so that when his eyes are shut, the patient is in complete ignorance of what position his arms are in. Slight anæsthesia of upper half of thorax. A patch of indolent congested and excoriated tissue, resembling a bedsore, is on the top of the right shoulder. Movements of the legs are weak and very slightly ataxic. A slight degree of anæsthesia of legs. There is no decided loss of muscular sense, inasmuch as the patient can always tell the position of his legs when his eyes are shut; but he cannot tell when his toes are moved passively. Knee-jerk and ankle-clonus are greatly exaggerated. Umbilical reflex faint, cremasteric reflex normal, and plantar reflex absent. No muscular atrophy in arms or legs.

Feb. 29. The condition of the patient has not materially changed during the past month, except that the tendon reflexes in the legs are not as exaggerated as they were, and he no longer presents the beautiful example of "spinal epilepsy" that he did. The spinal curvature has continued unchanged. In regard to treatment the patient has been kept on his back in bed. During the first month, he took nitrate of silver grs. ij, t. i. d., and during the second month, iodide of potassium grs. xv, t. i. d. Dry cups and hot water were applied to the back, and the galvanic current to the arms and legs. He has had several slight hæmoptyses, and, on examination, the left clavicle is found to be prominent, and there are dulness and broncho-vesicular respiratory murmur with an occasional moist râle after cough at the left apex. He became dissatisfied and left the hospital to-day, and soon afterward went to Cleveland, Ohio.

Early in May, Dr. Henry S. Upson, of Cleveland, Ohio, sent me the results of an examination which he very kindly made of this patient at my request. He found in both legs muscular weakness without atrophy, normal cutaneous reflexes, greatly exaggerated tendon reflexes, and preservation of tactile, painful and muscular sensibility; in both arms ataxia, anæsthesia, analgesia, loss of muscular sensibility, slight atrophy of the dorsal interossei, supra-spinatus and trapezius muscles on the right side, fibrillary contraction of the left supra-spinatus muscle and of the muscles in both arms; the muscles of the forearm responded to mechanical excitation, and there were exaggerated tendon reflexes at both elbows and wrists. All the muscles responded to both the faradic and galvanic current, except some of the deep muscles on the right side of the neck, which did not respond to either kind of current. Pupils reacted both to light and to accommodation, and an ophthalmoscopic examination revealed nothing abnormal.

When this patient entered the hospital, he presented the very remarkable clinical picture of locomotor ataxia in the arms, and of spinal spasmodic paralysis in the legs. The angular curvature of the spine, the hæmoptyses and the physical signs of pulmonary tuberculosis, taken in connection with the paraplegia, gave pretty conclusive evidence that a tubercular disease of the vertebræ was present, the products of which had given rise to a compression of the spinal cord (or to a compression myelitis) in the upper dorsal region. It is evident that the symptoms in the legs were all easily explicable by the compression. As is common in such cases, there was little or no disturbance of sensibility; the compression affecting more especially the anterior part of the cord and not involving the sensory fibres of the legs in the columns of Goll. It is possible that a descending degeneration of the crossed pyramidal tract (which at the autopsy of such cases of compression of the spinal cord is usually found running throughout the whole length of the cord below the compressed portion and even for a short distance above it) may have helped to cause not only the muscular weakness but especially the greatly exaggerated tendon reflexes. Later in the course of the disease, and while the patient was under observation in the hospital, the columns of Goll became slightly involved, giving rise to the symptoms of impaired sensibility in the legs, which, although slight, were quite evident on January 19th.

The compression was evidently situated at the spinal deformity, which was just below the cervical enlargement, but the symptoms in the arms could scarcely be due to a simple direct extension of the softening or the inflammation upward, for in that case the anterior parts of the cord would have been affected as much as, or even more than the posterior (since they were more involved at the point of compression), and would have produced muscular paralysis and atrophy of the muscles of the arms. A possible explanation of the fact that the posterior rather than the anterior horns were involved may be that the fibres of those sensory nerve roots in the posterior horns and in the columns of Burdach,

which were involved in the compression, had degenerated above this point, and that this ascending degeneration (which is usually found at the autopsy of cases of compression of the spinal cord) and consequent sclerosis had extended by contiguity to neighboring fibres and had caused a sclerosis of the posterior horns and columns of Burdach in the cervical enlargement, which gave rise to the symptoms resembling those of locomotor ataxia in the arms. It seems in this case as if the posterior horns were much more involved by the disease than the columns of Burdach, for the anæsthesia and analgesia were more complete and widespread than is usually the case in locomotor ataxia, and Dr. Upson found when the patient was in Cleveland that the tendon reflexes were not only not absent, but were exaggerated.

In regard to the knee-jerk, Westphal[1] has shown that in cases of locomotor ataxia its absence depends upon a lesion of the lateral portion of the columns of Burdach, which he calls the "zone where the roots enter" (Wurzeleintrittszone), at the junction of the dorsal and lumbar regions of the cord. He gives figures of the lesions in five cases of locomotor ataxia, in which the knee-jerk was preserved either throughout the disease or until very late in its course, and in which this zone was either entirely free from disease or had only just commenced to be involved by it. Probably the tendon reflexes in the arms depend on the integrity of a similar zone in the columns of Burdach in the cervical region of the cord, and the existence of these reflexes in this case proves that this zone is not diseased.

When Dr. Upson saw the case, the symptoms in the arms and neck indicated that the anterior horns were also being slowly encroached upon by the disease, but the signs of disease of the anterior horns, even at that late date, were very slight in comparison to those of the posterior horns; and it seems as if the extension upward of the inflammation in the posterior rather than in the anterior part of the cord might have been determined or brought about by the ascending degeneration which usually occurs in cases of compression of the spinal cord. It is not probable that this sclerosis would extend by contiguity for any great distance in the posterior horns and in the columns of Burdach, so that a compression of the spinal cord must be seated immediately below the cervical enlargement to produce the symptoms which it apparently produced in this case. It is certainly a case in which the diagnosis needs to be confirmed by an autopsy, but inasmuch as I shall, in all probability, never see the autopsy, even if one should be held, I publish the clinical history of this, to me at least, very uncommon case.

[1] Archiv. f. Psychiatrie, Bd. 17, S 547.

TWO CASES OF THE RADICAL CURE OF HERNIA.[1]

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G. B., male, farmer, aged forty-one, was admitted to the wards of the German Hospital on the evening of March 27, 1888, with the following history: For ten or fifteen years he had had a large swelling occupying the right half of the scrotum and extending upward to the neighborhood of the internal abdominal ring. During all this time this swelling had never entirely disappeared, although it varied in size and consistency. He had suffered no great inconvenience from it, except that due to its bulk, until about thirty-six hours previous to his admission, at which time it had suddenly become painful, much increased in tension, and a groove or furrow had developed midway between the base of the swelling and its origin above Poupart's ligament. The whole scrotal tumor was very tense, and nothing beneath the skin could be distinctly felt on palpation, though the lower portion gave the impression of containing fluid. There was a certain amount of resonance on percussion from the middle to the upper part of the swelling, the lower third being dull. In addition to the local symptoms, the man at the time of his admission into the hospital had persistent retching and vomiting, which had then lasted for twenty-four hours; the matters ejected were fluid, sour, offensive, but not distinctly feculent. A diagnosis of complete oblique inguinal hernia, strangulated in the sac, was made, and herniotomy was proceeded with.

A long incision was made beginning an inch above the situation of the internal ring and extending obliquely to the base of the tumor. The usual layers of tissue were divided until the sac was reached and opened. A constriction was found, as had been expected, at the point where the transverse groove was situated, which was due to bands of infiltrated lymph binding the inner surface of the sac to the closely adherent intestine. It was with great difficulty that the extreme tip of the finger-nail could be inserted at this point to serve as a guide for the probe-pointed bistoury, which was made to follow the finger and finally to divide a portion of these bands. Finding the constriction remaining, it became necessary to dissect down carefully from the outside, with light touches of the bistoury, until the lymph bands were completely divided; after this the separation of the bowel from the interior of the sac became comparatively easy, and was accomplished by the fingers without the aid of other instruments. At the level of both rings the intestine was found entirely free. As soon as the knuckle of gut below the constriction was drawn into view it was followed by an extensive gush of fluid, slightly blood-stained, and resembling that seen in hydrocele. The finger, following the sac to its base, easily recognized a rounded glandular mass about the size of a walnut, which was at first thought to be an atrophied testicle, this view being apparently supported by the existence of a fleshy cord in the sac extending its full

[1] Read before the Pennsylvania State Medical Society, June 6, 1888.

length, emerging from the upper ring and running to the gland mentioned, and containing a hard wire-like body which was then thought to be the vas deferens, and certainly was absolutely indistinguishable from that duct by the sense of touch.

At this juncture it was very natural to suppose that the hernia was of the congenital variety, the sac of the hernia and the tunica vaginalis being continuous. The existence of the supposed cord and the large quantity of fluid, together with the history of the case, all favored this view. A little later, however, all tension being then removed and the scrotal tissues easily subjected to palpation, both testicles were found to be *in situ*, the one on the affected side being below and behind the region exposed by the operation. Closer inspection then revealed the fact that the supposed testicle was an enlarged, indurated mesenteric gland communicating with a lymphatic vessel, also greatly enlarged and indurated by long-continued inflammation, giving it its wire-like feel; the fleshy tissue, thought to be the cord, proved to be a mass of omentum, which during its many years of irreducibility had become rounded and agglutinated so that it had lost all its special characteristics. This was ligated high up and removed, together with the enlarged gland. During this portion of the operation the constricted knuckles of gut, which when first brought into view had been black, crepitant and distinctly offensive in odor, had rested on the upper portion of the thigh of the patient, covered with hot carbolized towels, and had gradually recovered their normal color and consistence to such a degree that I resolved to return them to the abdomen. After doing this the upper portion of the sac and its neck were with considerable difficulty separated from the surrounding structures, careful dissection with the scalpel and the finger being required. The sac was then drawn strongly downward from the internal ring, and was tied with a stout silk ligature half an inch above the upper line of the incision which had been made into it. The ends of this were left long and threaded through stout curved needles. One of the threads was then carried up the canal, through one of the walls of the internal ring, and through the abdominal wall above and external to the internal ring, and the other carried through the opposite edge of the internal ring and through the abdominal wall, the skin being pulled aside in both cases, so that the sutures passed only through the fascial and muscular layers. These threads were then brought together and tightly knotted, thus fixing the stump of the sac in the internal ring, and at the same time almost completely closing the latter. The operation up to this point was practically that recommended by Mr. Barker, of University College, London.

Attention being then directed to the fundus of the sac, which remained *in situ*, it was found greatly thickened and tightly adherent to every portion of the surrounding tissues. The patient's condition not being good and there being no special advantage, as it appeared to me, in the removal of the fundus, this was left undisturbed. The tissues on either side were then stitched together by catgut sutures, excluding the skin. The wound then presented through its upper two-thirds two broad fleshy walls which seemed admirably adapted for rapid union.

Up to this point I had thought of concluding the operation after the method of Dr. Charles McBurney, of New York, leaving the wound open after sewing together on each side the various layers forming the abdominal wall, excluding, of course, the transversalis fascia and the peritoneum, and then packing it with iodoform gauze; but, as I have stated, the prospect of obtaining rapid union through the upper two-thirds then appeared to me so good that I brought all that portion together by closely applied interrupted catgut stitches, having first laid in the depths of the wound some strands of chromicized catgut to provide for drainage. The lower third, communicating with the remains of the fundus of the sac, was left open, and was filled with long strips of iodoform gauze.

Full antiseptic measures were employed throughout the entire operation, which was then completed by the application of antiseptic dressings, consisting of wet sublimate gauze, sublimate cotton and an antiseptic spica bandage. The patient recovered without a bad symptom. He was extremely restless at first, and a few drops of pus formed and discharged at the upper angle of the wound, which everywhere else united by first intention throughout its entire extent. The cavity at the bottom of the sac rapidly disappeared through contraction of the dartos and the scrotal tissues and obliteration of the sac by granulation. The patient had several large movements of the bowels within the first three days, and has never since had the least abdominal distention, swelling or tenderness. The temperature and pulse have been normal since forty-eight hours after the operation.

The patient is now, ten weeks after the operation, up and about, with a solid linear cicatrix, wearing no truss or other support, the use of which after operations for the radical cure of hernia I believe to be unphilosophical. With the exception of the scar, there is but a trifling difference between the two sides of his abdomen in the region of the hernia; and although it is too early to add the case to the list of successful operations, there is, as yet, certainly no return of the hernia. There is, however, a spot above the middle of Poupart's ligament at which the abdominal walls seem thinned and weak, and it may be that a hernial protrusion will make its appearance after he resumes his work.

It is, as yet, uncertain whether the statement of Leisrink, that the radical operation is less apt to be followed by relapses in cases of strangulated hernia than when done in other cases not complicated by strangulation, can be accepted as proven.

Weir's statistics, on the contrary, show that in operations on free or non-strangulated hernias relapses occur in 47 per cent., while in 138 cases of strangulated hernia operated on by Andaregg, Macewen and Reichel, 49 per cent. relapsed. The interesting question, therefore, whether strangulation,

or the inflammation and thickening of the sac which accompanies it, increases, as may be possible, the chances of rapid and thorough adhesion of the structures about the inguinal canal, and should, therefore, increase correspondingly the probability of securing a permanent result, must be regarded as yet undecided. Setting aside the factor of strangulation, the present case can hardly be considered a favorable one. The extensive adhesions, the age of the patient, the size of the tumor, the great distention of the abdominal rings, the involvement of the omentum, the doubtful condition of the gut and the extensive secreting surface which it was necessary to leave behind were distinctly unfavorable elements. The conclusion of the distinguished French surgeon, M. Socin, which was announced at the recent French Surgical Congress, and concurred in by all present, that "the chances are better in proportion to the youth of the patient, the smallness of the hernia and the shortness of duration," is that of all practical surgeons, and, as I have remarked, all these factors are absent in this case. Another opinion also expressed by him on the same occasion is at the present time as widely accepted, viz., that the operation for radical cure is the necessary complement of all kelotomies performed for strangulation, excepting only the cases in which the intestine cannot or should not be reduced.

In regard to the technique of the operation, the most important points to be noted are the treatment of the sac, the treatment of the rings and the edges of the canal and the employment or non-employment of pressure by truss or otherwise. Macewen's operation, in which the whole sac is retained, and after careful dissection folded upon itself by means of a ligature passed through it longitudinally, and is then stitched to the internal abdominal ring, has always seemed to me to have two objections: 1st, it requires a complete dissection of the entire sac, often a tedious procedure, and one which prolongs the operation at a period when it is desirable to complete it as soon as possible; 2d, although it is said to form a plug or buttress for the internal abdominal ring, it certainly leaves that portion or pouch of peritoneum more or less distinct, and to that extent favors a return of the hernia.

In the operation of excision of the sac, if strong traction be made at the time of applying the ligature, all trace of the hernial pouch of peritoneum may at once be obliterated, as may be readily demonstrated on the cadaver. A comparatively smooth surface is left with the minimum amount of cicatricial tissue. Macewen's plug consists largely of inflammatory lymph which unites the folds or layers of the sac, and finally becomes scar tissue, which always and everywhere throughout the body tends to break down and become absorbed under pressure. For these reasons I believe excision of the sac to be preferable. Twisting of the sac, as recommended by Mr. Stokes, is open to the objections to which attention has been called by Dr. McBurney, that a portion of adherent intestine might be drawn into the twisted canal, or a rupture of the peritoneum might result. To counterbalance these dangers I see no advantage whatever to be derived from this plan over that of excision and ligature of the sac. As to the treatment of the rings and edges of the canal, I believe that the bringing together of the separate layers on either side of the canal, with the idea of securing the union of their edges, is less efficient than the plan which I have above described.

The broad, fresh surface which is thereby obtained offers a greater probability of rapid union by adhesive inflammation than when the thin layers of fascia and muscle are stitched separately. Then, too, if union should not be obtained by this plan, the wound is left in good condition for the employment of McBurney's method and can be readily packed with iodoform gauze at any period after the operation. As to the subsequent employment of the truss, the same principle which I have mentioned as offering an argument against Macewen's method—namely, the ready disappearance of cicatricial tissue under pressure—seems to me to constitute a valid objection. The whole operation may now be said to be on trial before the profession, and each case has a distinct value, and should be carefully recorded and considered.

In those hernias in which the vaginal process of the peritoneum remains patulous and the hernia lies in contact with and surrounds a testicle, the problem of effecting a radical cure is manifestly complicated. The ordinary plans are inapplicable, as the sac of the hernia surrounding the cord and testicle can neither be folded up after Macewen's plan, nor ligated and excised. It is directed in these cases (Barker, *Operative Surgery*) to divide the sac in the middle and then close up the lower part by a few stitches, so that it may form a tunica vaginalis. The upper portion is then to be sealed up posteriorly, allowing the cord to escape behind it, after which it is closed up by stitching, and may then be treated by any of the ordinary methods. It has always appeared to me that this must necessarily leave a weak point in the neighborhood of the cord and that the effacement of the hernial pouch must be more or less incomplete.

For these reasons in a certain proportion of cases, especially those in which a congenital hernia is complicated with a retained testicle, it seems justifiable to sacrifice the latter organ, particularly, of course, if it be atrophied. The following case will illustrate this point:

C. B., a man, twenty years of age, was admitted to the German Hospital on the evening of May 5th,

suffering with strangulated, oblique, complete inguinal hernia of the right side. With the exception of the knuckle of gut which it contained, the scrotum on this side was empty, and it appeared that when the hernia was reduced the right testicle could be felt in the inguinal canal. It frequently gave him great pain and distress, and the hernia was very difficult to retain on account of the presence of the testicle, the truss exciting swelling and inflammation; for the same reason the attacks of strangulation had been frequent. On this occasion the pain was agonizing and unbearable, and both the patient and his family, who accompanied him, agreed that the prevention of other recurrences was worth any risk. Herniotomy being performed in the usual manner, the small, immature testicle was discovered lying in the inguinal canal near the external abdominal ring and held in place by bands of recent inflammatory lymph. The sac, *i. e.*, the tunica vaginalis, contained a large quantity of fluid and ten or fifteen inches of much congested intestine. The stricture, which was at the internal ring, was divided and the gut easily reduced. On account of the history which the patient had given, and for the reasons stated above, the cord was then ligated as high as possible, the stump returned to the abdomen, and the remaining portion, together with the testicle, removed. This allowed the upper portion of the sac to be pulled strongly down and ligated, after which the remainder was easily dissected out with the finger, as in cases of castration. Catgut drainage was used, the wound brought together after the method I have described above, the layers in each wall of the wound being first stitched to each other, and the whole wound approximated afterward. Union by first intention under one dressing followed, and the patient was left with a firm cicatrix, and at the present time, five weeks after the operation, without the slightest remains of the hernial tumor.

NOTE ON THE ACTION OF DIGESTIVE FLUIDS ON OIL.

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IN a paper by Dr. D. W. Prentiss (THE MEDICAL NEWS of May 12, 1888, p. 518), attention was called to the occurrence of so-called gall-stones in the dejecta after the exhibition of olive or cotton-seed oil, and the substance of a preliminary study which I had made of the compositions of these bodies was given. At Dr. Prentiss's request I have since collected additional data referring to this matter.

The action of the gastric juice on fat seems to be confined to separating therefrom all connective and enclosing tissue and thus setting the fat free. It is found in the stomach in large globules and passes the pylorus unchanged.

The pure intestinal juice seems to exert no action whatever on fats, and these substances are said by Busch to appear in the feces unchanged when subjected to the action of the intestinal excretions alone.

Flint says that, while the action of the pancreatic juice in emulsifying fat is undisputed, there is no evidence that in normal digestion there is ever any saponification. The fats found in the thoracic duct are always neutral, and do not contain any free fatty acid. On the other hand, Bernard has shown that the pancreatic juice outside of the body has a distinct power of saponifying fats. Landois and Stirling, however, recognize the saponifying power of the pancreatic juice in normal digestion, but attribute the result to a fat-splitting ferment called *steapsin*.

The process of emulsification is said to go on with much greater rapidity when the fat in question contains a trace of free acid. The surface of each fat globule becomes coated with a thin film of soap, which is soon detached, carrying with it minute particles of fat. The repetition of this process secures finally a complete emulsification. Both the soap and emulsion are absorbed. The authors state further that soluble fat soaps represent only a fraction of the fats which are absorbed, the greater part of the neutral fats being absorbed in the form of an emulsion. Absorbed soaps, however, have been found in the chyle.

Buchheim, in his *Lehrbuch der Arzneimittellehre*, third edition, p. 370, says: "The pancreatic juice also possesses the property of dividing fats into fine particles, at the same time that it effects, by reason of a ferment contained therein, a partial saponification of them."

Edes (*Therapeutics and Materia Medica*, p. 287) refers to the saponification of olive oil when administered in large doses, and the excretion of semi-solid masses of soap.

What relation the saponification of fat in the intestinal canal may have to its food value I cannot say. Recent experiments of Kellner (*Zeitschrift für Physiologische Chemie*, vol. xii p. 113) show that as a food for a draught horse one part of fat is equivalent to 2.6 parts of starch. Six and a half ounces of linseed oil enabled a horse to perform 464,000 pounds more work in a day than without this food. Hoppe-Seyler (*Physiologische Chemie*, Part IV. p. 949) ascribes the power of fat food to increase the amount of work performed to its influence in diminishing the consumption of the nitrogenous tissues. Whatever the true view may be, it seems certain that we have not yet quite understood the exact processes of fat-digestion and assimilation.

Dastre, in a recent study of the action of the bile in fat digestion (*Comptes Rendus*, tome 106, p. 217), has shown that the pancreatic juice alone is not capable of digesting fats. These conclusions of Dastre have just been confirmed by the experiments of Prevost and Binet (*Comptes Rendus* of June 11, 1888, p. 1690). These investigators find that in dogs, when the bile is prevented from taking part in digestion, fat foods are voided unchanged.

By an artificial cholecysto-intestinal fistula in dogs, they caused the bile to be emptied into the intestinal canal at a point twenty-five to forty inches from the duodenum. Through all this distance the fatty matters passed, subject to the action of the pancreatic secretion alone. The dogs being killed during the progress of digestion, the chylefers were examined. There was no trace of any absorption of the fat until after the mingling of the bile with the contents of the canal. Whence Dastre concludes that the presence of both bile and pancreatic fluid is necessary to the digestion of fats.

Dr. Prentiss, of this city, administered to a patient a large dose (a pint) of cotton-seed oil. In the dejecta were found large numbers of moderately hard ovoid bodies, which the patient thought were gall-stones. They were brought to Dr. Prentiss, who preserved them in a stoppered bottle and sent them to me for examination. On reaching me the whole had melted to a viscous mass resembling soft soap. On examination it proved to be a true soap, a mixture of soap and free fatty acids, easily soluble in alcohol, yielding fatty acids insoluble in water on treatment with an acid. After saturation with hydrochloric acid the chlorides of the alkalies were separated from the fatty acids by filtration, evaporated to dryness, ignited to low redness to drive off any ammonia and to destroy organic matter; the residual chlorides were dissolved in water, filtered through a small filter, evaporated nearly to dryness, dissolved in alcohol and treated with platinic chloride. A distinct precipitate of potassio-platinic chloride was formed, showing a trace of potassium. The chief part of the alkali, however, was soda, with, possibly, some calcium. This is an interesting case, showing the complete saponification or decomposition of a large quantity of oil by the pancreatic juice and bile, perhaps with the aid of a fat-splitting ferment, and the passage of the greater quantity of soap and acids thereby formed unabsorbed through the alimentary canal.

Since the complete saponification of such an amount of oil would require more alkali than is normally found in the intestinal canal, it seems probable that the oil may be split up in the canal without complete saponification. I have, unfortunately, taken all the sample sent me for the first examination and therefore will not be able to decide this point until opportunity for another analysis is presented.

The occurrence of semi-solid masses in the feces has been noted by many writers, but they have usually been called gall-stones. The *Therapeutic Gazette* for May, 1888, reports a case of this kind, but evidently without believing it true. As has already been noted, Dr. Edes has properly named these excretions, but informs me that he does not know of any analysis of them having been made.

Mojon (*Revue Médicale*, 1844, quoted in Thudichum's *Treatise on Gall-stones*, p. 199) says, "concretions of solid fat occur in the feces after the use of sweet oil;" but in this he is evidently mistaken. Sweet oil could not produce a concretion of solid fat without undergoing a more profound change than saponification. These concretions were, doubtless, masses of soap, such as I have described above. Thudichum (*Treatise on Gall-stones*, p. 135) describes certain biliary calculi which were composed largely of calcium soaps. The hardness and crystalline structure of these stones, however, would prevent them from being confounded with the masses of soap and acids forming the subject of this study. In the feces of dogs, Hoppe-Seyler (*Physiologische Chemie*, p. 337) has found calcium soaps of stearin, palmitin and olein. The feces are exhausted with alcohol and ether, and the residue treated with hydrochloric acid and a mixture of alcohol and ether. Wegscheider (*op. cit.*) has found these calcium soaps, also, in the feces of healthy children who were nourished exclusively by mother's milk.

I desire to thank Drs. Prentiss, Edes and Lee for favors extended in the preparation of this note.

WASHINGTON, D. C., July 3, 1888

TWO CASES OF BASE-BALL PITCHER'S ARM.

BY A. H. P. LEUF, M.D.,
OF THE UNIVERSITY OF PENNSYLVANIA.

As a supplement to my paper on "Base-ball Pitcher's Arm" that appeared in THE MEDICAL NEWS of July 15, 1887, I would offer the following cases of two noted pitchers treated by me in the middle of last season (1887).

CASE I.—Mr. W., male, single, about twenty-five years of age, average height and weight, and inclined to be thin. Had never worn any elastic bands on his pitching arm. Was never troubled with a bad arm until last year. He seriously intends to "lay off" for one month, because of a very sore arm. Has pain under the scapula (anterior border) and anterior fibres of the deltoid. There is marked atrophy of the teres minor. The deltoid seems not atrophied. Pitching the out-curve pains him. Has been steadily getting worse. Is taking another physician's medicine for indigestion and diarrhœa.

Treatment.—This consisted in regular morning and afternoon exercise, for an hour each time. He was instructed to surround the shoulder with towels wrung out of hot water, and applied as hot as could be borne, both after and between exercises, so as to make at least four applications a day. All shower and cold baths were interdicted. A warm bath was to be taken after each game. Galvanism was applied to the teres minor and anterior fibres of the deltoid, so as to redden the skin and cause marked contraction on interruption and reversal of the current. Reversal of the current caused but slightly more contraction than simple interruption.

Prognosis.—Keep up work, and pitch in game in

a few days, but continue treatment for four or six weeks at least. Recovery ought to be complete.

Second visit, three days later. No pain whatever during practice. Highly elated. Will pitch in a game on Monday or Tuesday. Continued treatment.

Third visit, four days later. Pitched yesterday. Arm felt "fine." "Not the slightest ache or pain." Says he could have pitched another full nine-inning game. Arm felt a little stiff and swollen this morning; after galvanism this entirely disappeared. Pitches again to-morrow. In yesterday's game he pitched against the C—— team, with M—— in the box; only seven actual hits were made off him, and he gave two men bases on balls; twelve actual hits were made off M——. To-day's paper says of the patient: "W—— pitched a remarkable game." He won by a score of 3 to 2.

Next day he returned for galvanism, and felt so well that he did not think it necessary to call again. In a few days he left the city with his club, and while in the west, a few days later, he pitched, on two successive days, against one of the greatest ball clubs ever organized, and won both games on the opponent's grounds, a very remarkable feat of endurance and skill. He suffered no bad effects, and during the balance of the season his arm never troubled him again.

Case II.—Mr. A., male, married, æt. twenty-nine years, tall, and of fine physique. Muscles of the right arm remarkably developed and very firm. Wears an elastic elbow-band, and has done so for a couple of seasons. Extension at the elbow is incomplete and due to slight contraction of the brachialis anticus and biceps, and osseous enlargement of the lower end of the humerus and upper ends of the radius and ulna. Was able to extend both arms equally well at first, but the pitching arm began not to admit of full extension. Was injured at Cleveland while pitching, so that he had to stop at once. Since then he has been under medical treatment, but was getting worse all the time. At the present time he cannot dress or undress unaided. Had to help him off with his coat. Can hardly bend elbow. Has it slightly flexed at an angle of about 150°. Has severe pain and considerable swelling on both sides of the olecranon and on either side of the triceps tendon just above, being most marked on the inner side. The out-curve is the most painful by far Flexion at the elbow causes pain along the distribution of the ulnar nerve, which is very tender behind the internal condyle. There is no osseous tenderness. Says that sometimes he feels a snap at the site of the head of the radius, and that then he cannot flex his arm until it has been pulled and rotated. This seems as if it might be a subluxation of the head of the radius. Also pain in anterior fibres of the deltoid. Wants to know if he is disabled for life, and if not, if he can pitch again during this season. Estimated time for reasonable cure two weeks, or complete cure nearly two months.

Treatment.—No shower or cold bath. Warm baths after each game. Elbow dipped in hot water three or four times a day, as hot as can be endured, and kept up for about half an hour each time. Arm not to be used until after next visit. Applied galvanism, + pole at nape of neck and — pole at sore spot of elbow. Current strong enough to redden skin and cause marked muscle contraction during interruption of current. Also applied — pole to the deltoid (anterior fibres). Both were then applied to the elbow, allowing the current to pass through the joint and surrounding structures from before backward. Felt comparatively little pain after the galvanism, even in efforts at pitching. To return in five days.

Second visit, five days later. Very much improved. Flexes and extends arm readily, and with little pain. Motion of moderately swift throwing or pitching gives very little inconvenience. Continued treatment and advised beginning to practise moderately every day, in the morning and afternoon, for about one hour each time.

Third visit, two days later. Still more improved. After first practice (in afternoon) arm was very painful, not having used it for about two weeks. After second practice (in morning of next day) it was not nearly so painful. After the third practice (the afternoon of the same day as the second) he had almost no pain. Had a little this noon (next day) in the vicinity of the olecranon, but was free from it after galvanism. Perhaps will pitch in a game day after to-morrow.

Fourth visit, one week later. Has pitched for about one hour, every morning and afternoon, since the last visit, and never had the slightest pain or inconvenience until to-day. While pitching this afternoon he suddenly had a slight pain at the tip of the olecranon in pitching the in-curve. Stopped at once. Applied thirty cells of the Barrett chloride of silver battery until the skin was red, and broke and reversed the current repeatedly. Showed him how to pitch an overhead in-curve and out-curve without straining his elbow and radio-ulnar joints. He cannot touch his right (pitching) shoulder with the tips of the fingers of the same side, though he could before he became a pitcher, and can do so on the other side. Pitched in a game next day without much trouble.

I have purposely run the risk of being tiresome in the recital of these cases by making almost verbatim copies from my histories. These two were selected because very bad, and one quite intractable. The first case was remarkable for its prompt response to treatment, and the permanency of the cure, for at no time during the season did his arm trouble him. Case II. was seen by me again several times during the season, and hardly any trouble remained, at least not enough to prevent first class pitching. I have seen him this winter (in February, 1888), and find his arm in better condition, as he tells me, than ever before.

These cases show the quick response of such injuries to good treatment, and the certainty with which they get worse under wrong treatment. It is not only necessary in such troubles to use galvanism properly and give good advice, but it is necessary

(as I did in Case II.) actually to see them pitch, and study their delivery so that advice may be given as to change of delivery, thus enabling them to rest the affected parts while they still remain on duty and draw pay. This is very important when we recollect that the "laying off" of a good pitcher for a couple of weeks means a loss to him of from $50 to $100, or even more.

129 SOUTH THIRTY-SIXTH STREET.

CHOREA OF PREGNANCY AND OF THE AGED.

BY C. L. DODGE, M.D.,
OF KINGSTON, N. Y.

A FORM of chorea occasionally occurs during pregnancy. It is extremely rare. Sinkler (Pepper's *System of Medicine*) gives sixty-six cases as the total number recorded to date. Inasmuch as chorea is a disease of childhood, the large majority of cases occurring between the ages of five and fifteen years, we should not expect to meet with it frequently in adults. The chorea of pregnancy is said to be a very serious and often fatal affection, and almost beyond the power of remedies to control.

CASE.—Mrs. T., twenty-three years of age. First saw her May 3, 1886; about eight months advanced in her third pregnancy; she was a large, healthy-looking woman, weighing one hundred and fifty pounds; no history of rheumatism; never had chorea when a child. About two months before, she first noticed symptoms of muscular weakness of the left arm and foot, soon followed by inability to control the movements of the left hand; this grew steadily worse, till she was finally obliged to fasten her arm to her side, to prevent injury to the hand, as she was utterly unable to control its movements. Mental condition good, but speech somewhat affected. The bromides, arsenic and iodide of iron were tried in vain, absolutely no improvement taking place. At eight and a half months, she was taken with convulsions. I continued the bromides; also gave morphia and chloroform, notwithstanding which they recurred at intervals for twenty-four four hours. They seemed to me to be epileptiform in character, so I did not at first resort to venesection; but the next day, after consultation, I decided to bleed her. After removing about twenty four ounces of blood, we tied up her arm, and she appeared much better, was able to converse intelligibly and seemed perfectly rational. She had no more *convulsions* afterward; she would have peculiar nervous "spells," as her friends termed them, but no more fits. The chorea, however, remained fully as bad as ever. It persisted, for nearly three weeks after confinement, to such an extent that it was necessary to bind her arm to her side while she nursed the baby, for fear of injuring it. By the end of the month, she began to show signs of improvement, and, in less than two months from the time of her accouchement, she had entirely regained the use of her hand, and, to this time, has had no return of the trouble.

The family history here is interesting. Her mother has been subject to rheumatism all her life; she also had chorea during her pregnancy and with *this child*, which was *her third* pregnancy. The patient has an older sister who has epilepsy. She cannot recall any particular fright during her pregnancy, but says she was obliged to stay alone at nights a great deal, her husband being away from home, and she would get very nervous at such times and often lie awake most of the night.

Primiparæ are said to be most frequently affected; indeed, the four cases recorded by Sinkler and referred to by Osler (THE MEDICAL NEWS, October 22, 1887) were all primiparæ. The mental symptoms are frequently severe, and the mortality high, ranging, according to Osler, from twelve to thirty per cent. Out of sixty-six recorded cases, chorea occurred previously in fourteen. Rheumatism and fright seem to act as exciting causes in a number of cases (Sinkler).

The causation of the chorea of pregnancy, so far as known at present, according to Wood (*Nervous Diseases*), is summed up as follows:

"There are, usually, a predisposition to chorea, inherited or acquired, inanition of the nervous system incident to the hydræmic state of the blood during pregnancy, and various potential peripheral irritations, especially in connection with the sexual organs. The most rational explanation of the chorea of pregnancy is that it varies in its immediate pathology, the pregnancy simply producing a condition of the nervous system which predisposes it to be thrown into an active chorea by various exciting causes."

Senile chorea is even more uncommon. Sinkler has reported two cases, which, according to Osler, are the only instances recorded in this country. Saundby has collected but twelve cases abroad, the ages ranging from fifty to eighty-six, six of each sex (Osler, MEDICAL NEWS, October 15, 1887). He also adds that it seems to be an intractable affection, similar in many respects to the juvenile form, not often associated with rheumatism, and the subjects of it are very frequently dements. Hammond affirms (*Diseases of the Nervous System*, 8th ed., p. 739) that "in those cases reported by authors, of the affection originating very late in life, we have every reason to conclude that they were instances of organic lesions of the brain or spinal cord—probably sclerosis—giving rise to rhythmical movements or paralytic tremor." The following, I think, will be admitted to be a case of chorea, pure and simple.

Mr. D. First saw him September 22, 1883, and he was then seventy-five years of age; his health had always been good; was rarely ever sick; no history of rheumatism or nervous affection of any kind when a child; had always worked hard on a farm; one year before, he began to notice some muscular weakness and want of control over the left hand, and, soon after, of the left foot also; later, his speech became affected, with the muscles of the left side of

his face, causing the peculiar and well-known grimaces characteristic of chorea. His general health remained unaffected; appetite good; ate heartily, slept well, etc. In October, 1886, he was attacked with hemiplegia of the *right* side, which rendered him entirely helpless; his speech became so indistinct as to be unintelligible, with complete paralysis of the right side. The choreic movements of the left side still continue, however, up to this time, as he is still living.

The family history is negative, but his children and granchildren are affected with various nervous troubles. His daughter had chorea when a child, but recovered. His granddaughter (daughter of the one just mentioned) had hystero-epilepsy for two years, but has apparently recovered, after treatment with chloride of gold and sodium. His grandson (brother of the last mentioned) has slight choreic spasms of the right side of the face. The children and grandchildren were all relieved by treatment, but the old gentleman never improved in the slightest under any kind of treatment whatever.

This, to my mind, goes far to prove an hereditary tendency or predisposition, requiring only some special exciting cause to develop the malady.

MEDICAL PROGRESS.

The Treatment of Summer Complaint at the Thomas Wilson Sanitarium, Baltimore.—In acute diarrhœa, with vomiting of milk, the child is at once taken from the breast or bottle, and no food except beef tea is given to it for twenty-four hours. Small doses of calomel—$\frac{1}{12}$ to $\frac{1}{8}$ grain—are administered hourly for a day or two, to quiet the stomach and to excite the secretion of the liver. At the end of twenty-four hours *sterilized milk* is given. If the vomiting returns, the milk is stopped and beef tea is resumed for twenty-four hours, when milk is once more given.

No artificial foods are used in the Sanitarium. Irrigation of the lower bowel is practised two or three times a day, if it does good. In chronic cases, resorcin, grs. ij, with tr. opii deodorata, gt. ½, is given every two or four hours. When vomiting proceeds from nervousness, sodii bromidum, grs. ij, and chloral hydrate, gr. j, are administered every two or four hours to a child of six months. This same prescription is used for sleeplessness. As a rule, no further medication is needed.

Dr. Brooker considers the *sterilization of the milk* a great improvement, likely to do away with wet-nursing and artificial foods. Milk as it flows from the breast is free from microscopic germs. Between the time when the cow's milk leaves the udder and the time when the baby drinks it various minute organisms may fall into it, which, either before or after the child takes it, produce changes in the milk which cause disorder of the digestive organs of the child.

By *sterilization* we either destroy these organisms or check their growth. The apparatus for sterilization is a covered tin bucket, 10 inches in height by 8 in diameter, and a wire basket, made by Dufur & Co., of Baltimore, large enough to hold six or eight nursing bottles. In the bucket, filled to the depth of one inch with hydrant water, is placed the wire basket with the nursing bottles, each of them containing a suitable amount of milk and stopped with a wad of cotton batting. The bucket is then covered and placed on a gas stove, and the water is boiled for half an hour, the milk, bottles and stoppers becoming sterilized by the heat. After cooling, the basket of bottles is kept in a cool place, and one by one, as needed, the bottles are removed, the stoppers taken out and a disinfected nipple is attached for nursing. Milk enough to supply one baby for twelve hours is thus prepared at once, and if kept in a cool place—even without ice, it will remain sweet and wholesome until used. The whole apparatus, including bottles, costs a little more than a dollar.

It is stated by Dr. Brooker that when the infant's bowels have once been cleared of ill-digested milk by change to beef tea and by irrigation, the use of sterilized cow's milk, properly diluted, is followed immediately by great improvement in the health of the infant, as great as when it returns to the breast of its mother.

For irrigation of the bowels a fountain syringe full of tepid hydrant water is connected with a soft rubber catheter about fourteen inches long, and this catheter, oiled, is passed gently to its full length into the rectum and descending colon, the water—a gallon or more—being allowed to flow into the bowel and out again by the side of the catheter. This irrigation is painless and often aids greatly in recovery, especially in severe cases resembling cholera infantum.—*Maryland Medical Journal*, July 14, 1888.

The Supposed Transition of Benign Growths of the Larynx into Malignant.—It has been suggested that benign growths of the larynx, as a result of intra-laryngeal operations for their removal, are liable to become transformed into malignant tumors. This suggestion, if proved to be well founded, would do much to show that von Bruns's introduction of the intra-laryngeal operation for tumors was not the great improvement it has been held to be; but, on the contrary, a very mischievous procedure. The plan of collective investigation has been employed by Dr. Semon, the editor of the *Internationales Centralblatt für Laryngologie*, etc., to throw light upon this subject, and in the July number of that journal the results of the inquiry are briefly given. These are so important that the profession ought at once to be made fully acquainted with them.

Returns have been furnished by 107 observers, who have together recorded 10,747 cases of benign growths in the larynx and 1550 cases of malignant tumors. Of these 10,747 cases of benign growths, 8216 have been submitted to intra-laryngeal operation, and among this number there are 3382 cases of papilloma. An apparent transformation from benign into malignant growths has been noticed in thirty-two instances. Each one of these cases must be submitted to a very careful criticism, but, apart from that, as many as sixteen of the number are by those who record them marked as "doubtful," and they cannot therefore be used. It is quite open to question whether the remaining sixteen cases do not include examples of "mixed" growths, and it is noteworthy that the tables include twelve cases not submitted to intra-laryngeal operation, in which a similar change in

the nature of the growth was thought to be noticed. But putting aside this view altogether, we are met with this supposed change in one case out of every 513 cases thus treated. It must be at once admitted that if the operation had any appreciable influence in modifying the nature of a neoplasm, the proportion of cases in which it would be observed would be much greater than this.

Considering the enormous advantages the intra-laryngeal method of operating possesses, it is a matter of considerable satisfaction that it is thus conclusively shown not to be attended with the grave danger that has been suggested in some quarters.—*Lancet*, July 7, 1888.

Salicylate of Sodium in Acute Articular Rheumatism.—In what large doses salicylate of sodium can be given in acute articular rheumatism is well shown by the experience of PROF. v. JAKSCH. "In a severe case of articular rheumatism, in an otherwise healthy individual," he says, in the *Wiener medizin. Pr.*, No. 1, 1888, "I give at least 150 grains, even 225, 300 to 360 grains of salicylate of sodium in the first twenty-four hours of treatment. Should toxic symptoms arise—a rare occurrence, I do not stop the remedy, but merely reduce the dose, so that, for instance, instead of 15 grains but 8, or even 4, are hourly given; I do not consider it judicious to stop the remedy entirely. As a result of this treatment, as a rule, the main symptoms disappear after a few hours, the patients sweat profusely and feel comfortably. In the second twenty-four hours, the salicylate is and must be continued, but in smaller doses; if 300 grains have been given in the first twenty-four hours, 270 or 240 grains are now given, whether the patient show toxic symptoms or not; even then it is injudicious to at once discontinue the salicylic medication; is this done, a relapse may be hourly awaited; to prevent such relapse, the patient must continue the salicylic treatment at least eight days, the quantity of the drug used being day by day diminished."

Should no marked improvement occur after the first twenty-four hours, the case is one of those not infrequent cases of acute articular rheumatism which resist treatment with the salicylic preparations. In these, the benzoate of sodium, up to 450 grains a day, is particularly recommended.—*Deutsche medizin. Wochenschr.*, June 14, 1888.

Agaricin for the Sweats of Phthisis.—LAUSCHMANN (*Pest. med. Chir. Pr.*, 1887, Bd. 4) recommends the following formula:

R.—Agaricin. . . . . gr. j.
Pulv. ipecac. et opii . . . gr. xv.
Gum Arabic,
Pulv. alth. . . . . āā gr. viij.—M.
Ft. Pil. No. xv.
S.—One or two pills at night.
—*Deutsche med. Woch.*, July 5, 1888.

The Relations of the Subcortical Centres to Epileptic Seizures.—ZIEHEN, of Jena (Verslg. d. Südw.-deutsch. Neurologen u. Psychiater), has found that mechanical irritation of the corpus striatum, of the middle and posterior portions of the thalamus opticus and of the anterior pair of the corpora quadrigemina gives rise to energetic movements of locomotion, while irritation of the posterior pair of the corpora quadrigemina occasions tetanic convulsions. He, therefore, considers the centres last mentioned as the source of the tonic convulsions of epilepsy.—*Wiener medizin. Pr.*, July 1, 1888.

Sulphonal.—Two articles on this subject appear in a recent number of the *Berliner med. Wochenschr.* (June 18th), one by Dr. H. Rosin, of Breslau; the other by Dr. C. Oestreicher, of Berlin.

DR. ROSIN tried sulphonal on eighty-two patients, besides others. In doses of two grammes (half a drachm) it was found almost invariably to have a decided hypnotic effect, without any disturbing symptoms, even when cardiac derangement was present. Such a dose Dr. Rosin considers equal to one-sixth or one-seventh of a grain of morphine, but the latter was found more efficient when the insomnia was due to cough or pain. A dose of four grammes (one drachm) produced a sleep lasting three or four hours in the daytime, but much longer at night; but the sleep after the dose always left a feeling of heaviness behind it. Dr. Rosin, who sticks to his text, concludes thus: "On the whole, sulphonal in doses of two grammes (half a drachm) is as certain in its effects as morphine or chloral, and in cases of simple insomnia may be recommended in doses of double that strength, on account of its freedom from after-effects."

DR. OESTREICHER observed the effects of sulphonal on fifty patients with nervous diseases, besides some who were phthisical, and concludes that in moderate doses—that is, two grammes (half a drachm)—this drug is a non-injurious hypnotic. Respiration, pulse and kidney-secretion were unaffected; the effects of persistent use are, of course, unknown at present. It is best given in capsules or tabloids, from its insolubility in water. Oestreicher finds it without smell or taste; Rosin states that it has a slightly bitter taste. Sleep sets in more slowly than after chloral or morphine, in corresponding doses, but lasts longer. The editor of the *Berliner klin. Wochenschr.* confirms the above from observations of his own.—*British Medical Journal*, July 7, 1888.

Quebracho for Dyspnœa.—From a study of seven cases with asthmatic symptoms and dyspnœa in various affections, as in ascites, bronchial catarrh, emphysema and tuberculosis, WALTER P. ELLIS recommends quebracho in the treatment of dyspnœa. He uses both the solid and the fluid extract of Aspidosperma quebracho (as reported in the *Therap. Monatsh.*), and states that the remedy is the more effective the severer the attack. It not only checks the paroxysm, but is equally prophylactic for months. When the dyspnœa occurs on exertion and interferes with the occupation of the patient, the prophylactic efficacy of the drug exceeds the anticipations of doctor and patient. At the beginning or, when possible, shortly before the beginning of the seizure, or upon contemplated exertion which is known to cause seizures, Ellis gives a grain and a half to two grains of the solid extract or a teaspoonful of the fluid extract, repeated at intervals of an hour, as required. He considers plausible Penzoldt's hypothesis that, through the influence of the remedy, the blood is able to take up more acid than usual and thus to satiate the intense demand.—*Wiener medizin. Pr.*, June 10, 1888.

The Topical Use of Camphoric Acid.—REICHERT has, since a year and a half, successfully used camphoric acid for chronic affections of the mucous membrane of the respiratory tract, the mouth, the bronchial tubes and of the skin. This acid is a product of the action of nitric acid upon camphor, is soluble slightly in water, freely in alcohol and ether. It is astringent and antiseptic. One-quarter to two per cent. solutions are recommended in acute angina faucium (not in diphtheria), in acute and subacute pharyngo-laryngitis and tracheitis. Inhalations of one to two per cent. solutions are less useful, but satisfactory. Acute coryza is allayed or moderated by a 1 to 500 solution in douche, or by two to four per cent. application with a brush. In chronic bronchitis and bronchiectasis camphoric acid acts as an expectorant and disinfectant. Tuberculous sores heal in six to ten weeks with a two to six per cent. solution.—*Münchener medizin. Wochenschr.*, June 12, 1888.

The Relation of Puerperal Insanity to Puerperal Infection.—TH. HANSEN, of Copenhagen, has published an interesting study (*Centralbl. f. Gynäk.*, No. 20), the object of which is to demonstrate that puerperal infection, to which most modern authors ascribe only an occasional or predisposing influence, has a real causal relation in the production of puerperal psychoses.

While assistant physician, partly in a neurological department, partly in the maternity, Hansen collected 49 cases of puerperal psychoses, of which 21 were under his own observation. Of the 49, not less than 42 showed signs of puerperal infection; of the latter number not less than 12 were fatal. These 42 are grouped by Hansen as "infection psychoses," the features of which are acute hallucinatory confusion, followed by restlessness and a feeling of fear, passing into a condition of stupidity or depression, in which the first stage exacerbates. Among the 7 cases in which puerperal infection could not be proven 2 were of eclampsia with hallucinatory confusion of short duration; the other 5 were psychoses of a different kind.—*Wiener medizin. Pr.*, June 10, 1888.

Lanolin and its Imitations.—German medical literature contains frequent testimonials, from clinical observers, of the extended uses of lanolin as an unguent basis in the treatment of skin diseases, the therapeutic application of inunctions to the treatment of constitutional diseases, as an obstetric application in the treatment of wounds and cuts, and cosmetically in the prevention of sunburn and freckling, and even "the prevention of wrinkles." Professor Oscar Liebreich's most valuable and original addition to our storehouse of the therapeutic resources is, however, subject to the usual drawback which attends the introduction of any novel and useful substance, by the occasional substitution of imperfect imitations and inferior products simulating lanolin, at least in title, which produce deleterious effects.

DR. G. MEYER, of Berlin, reports to the following effect in the *Deutsche med. Wochenschr.*, No. 19, 1888. A man, aged thirty-eight, had a hard chancre in 1875, and was treated in the Charité Hospital, Berlin, and elsewhere, for relapses, during the next five years. In June of last year he suffered from hoarseness and swelling of the testicles. Amongst other treatment, the following ointment was applied to the testicles: Pot. iodid., 1 gramme (15 grains); lanolin, 10 grammes (150 grains). The word "lanolin" was written without any affix. Severe acute dermatitis of the scrotum followed, with great swelling, redness and burning heat of the skin. The penis participated. The man could not walk about, and, therefore, left off work. The inflammation, he said, set in after the fourth infriction. The general health was not affected; the penis, as above said, shared in the inflammation, which affected both sides of the scrotum. Epididymitis was excluded accordingly, and suspicion rested on the ointment. More of this was ordered, as before, for examination only, and it smelt "acid and rancid." The skin remained like thick leather for some time. An ointment of one part of potassium iodide in ten parts of lanolin puriss. (Liebreich) was then rubbed in by Dr. Meyer himself. The skin was distinctly thinner two days afterward, without any trace of irritation by the ointment. The previous inflammation was due, there is no doubt, to the rancid lanolin used, for all sorts of lanolin, except Liebreich's, contain several fatty acids. The percentages of these in various samples of lanolin are given in the *Deutsche med. Wochenschr.*, No. 28, 1886, as 33, 26, 17, 16, 16; in Jaffé and Darmstaedter's lanolin, 0.5 to 1.—*British Medical Journal*, July 7, 1888.

Encephalic Asymbolia.—Under this term, MEYNERT, before the Society of Physicians at Vienna, described one of the forms of aphasia. Objects may be seen, but the patient can make no use of the visual impression, because the recognition of the optic pictures is lost. There is a disturbance of association between the optic centre and the centre for the interpretation of visual impressions.—*Wiener medizin. Presse*, June 10, 1886.

Ichthyol in Erysipelas.—The Russians are reviving the recommendation of ichthyol for erysipelas. The remedy has been used partly as collodion (ichthyol, ether, āā 10 parts, collodion 150), partly with vaseline (equal parts), and surprising results are claimed. It is emphasized that the application extend to the neighboring healthy tissue.—*Deutsche medizin. Wochenschr.*, June 14, 1888.

Antiseptic or Aseptic Solutions for Injection or Douche.—DEMELIN, in *Revue Générale de Chirurgie et de Thérapeutique*, June 28, 1888, recommends the following weak carbolized solution (Lister's):

R—Crystallized carbolic acid . .	25	parts.
Alcohol	25	"
Distilled water	1000	"

or,

Crystallized carbolic acid . .	25	parts.
Glycerin	25	"
Distilled water	1000	"

The latter solution is better adapted to the tissues than the preceding.

Acromegalia.—FRAENTZEL, before the Verein für Innere Medizin, at Berlin, on June 4, presented a case of acromegalia in an intemperate patient with phthisis. There was enormous development of the bones of the extremities and of the face. The hands and feet were much enlarged. Fingers, toes and nails were colossal. The soft tissues of the corresponding parts were swollen and of a peculiar, doughy consistence. The nose was conspicuous for its thickness, the lips for their prominence. At the autopsy, there was narrowing of the aorta; there

was no trace of the thymus gland; the thyroid gland was normal. In this case, the acromegalia was shown to have existed since early youth, and the condition was transmitted to a daughter of the patient.—*Wiener medizin. Presse*, June 24, 1888.

A Novel Treatment of Hydrocephalus in Infants.—DR. SOMMA (*Deutsche med. Ztg.*) has, with good results, availed himself of the heat of the sun in the treatment of five cases of chronic hydrocephalus. These are his conclusions:

1. The treatment of hydrocephalus congenitus and chronicus in infants, by means of the heat of the sun, is to be preferred to all other therapeutical measures.

2. The physiologic-therapeutical efficacy of the treatment probably consists in the excessive functional activity of the local sweat glands in consequence of the powerful excitation and of the high temperature of the head, by means of which the intracranial collection of serum is absorbed. Perhaps, too, the thermic irritation stimulates the vaso-motor innervation and, in consequence, an increased activity of organic oxidation and an increased absorption of the fluid and solid intracranial elements.

3. Recovery will be most ready when there is no injury of the cerebral tissue and the nervous manifestations are exclusively the result of pressure, when the child is otherwise healthy and not reduced; and the hydrocephalus, particularly if ventricular, shall not be far advanced.

4. The treatment is as follows: The child is given to an assistant, whose head is covered; with a clear sky, the occiput is exposed to the rays of the sun, the assistant seated and immovable. In the first four or five days, the exposure may last a half hour or less; later, forty or fifty minutes. The treatment must thus be continued for a month.—*Wiener medizin. Presse*, June 10, 1888.

Biliary Calculi in Women.—MARCHAND (*Deutsche med. Wochenschr.*, 1888, No. 12) thinks the frequent occurrence of gall-stones in women due to tight lacing, and finds a causal relation for the association of fissures of the liver and gall-stones. The compression from lacing mostly affects the region of the cystic duct, causing an abnormal retention of bile, with consecutive formation of calculi.—*Fortschritte der Medizin*, June 15, 1888.

The Use of the Double Salts of Caffeine in Pulmonary Diseases.—DR. GEMPT, from a careful study of this subject, reaches the following conclusions:

1. The double salts of caffeine are indicated in acute fibrinous pneumonia, when the heart's force lessens, the arterial pressure falls, or the pulse becomes abnormally frequent or arhythmical.

2. The administration of the remedy is to be begun, if possible, before signs of collapse arise, but the indication is the more positive in case of unexpected collapse.

3. When asthenia or lesions or degeneration of the heart exist, and in the cases of infants and of old persons, the remedy is to be recommended at the beginning of the disease.

4. The proper administration of appropriate doses causes diminished frequency of pulse and respiration, rise in arterial pressure, reduction of temperature, and produces a favorable influence upon the subjective condition.

5. The action begins speedily, but is more speedy and more certain in threatening cases if the drug is injected subcutaneously.

6. In conditions of pulmonary atelectasis or hypostasis, the same indications exist.

7. The indications for the use of the sodio-salicylate of caffeine in pulmonary emphysema and asthmatic conditions is analogous to those for its use in heart diseases. —*Berlin. klin. Wochenschr.*, June 25, 1888.

Naphthol in Ozœna.—At the recent Congress of the French Society for Laryngology, RUALT recommended naphthol in the treatment of ozæna. He irrigates the nasal cavity, three or four times daily, with the following solution, to be freshly prepared before each application: To a quart of water, add a teaspoonful of a solution of equal parts of biborate of sodium and bicarbonate of sodium, and a teaspoonful of a solution of beta-naphthol, 12 parts, in alcohol (90 per cent.), 84 parts. In obstinate cases, in addition to the preceding, cotton tampons, saturated with the following, are introduced into the nares for fifteen minutes: beta-naphthol, 12 parts, tincture of quillaya 88, distilled water, 400. The advantages of this treatment are the rapid disappearance of the odor and the decided diminution in the secretion. The only objection to naphthol is a slight burning, occurring immediately after its use, but soon disappearing.—*Wiener medizin. Presse*, June 17, 1888.

Sulphonal.—SCHWALBE, of Friedrichshain, assistant to Fürbringer, from a study of the use of sulphonal in fifty cases, concludes that:

1. Sulphonal is an agreeable medicament, being odorless and tasteless.

2. It acts as a hypnotic in cases of "nervous" sleeplessness, in doses of fifteen to thirty grains. When the insomnia is the direct result of organic disturbances due to existing disease the action is more or less uncertain.

3. Sulphonal does not affect temperature, pulse or respiration, and is to be preferred to morphine and chloral when heart failure is to be feared. It is especially to be commended for children.

4. The subjective manifestations, immediate and subsequent, are insignificant, and not a contraindication for the use of the drug.—*Deutsche medizin. Wochenschr.*, June 21, 1888.

The Symptomatic Value of Optic Neuritis.—MANZ, of Freiburg (Versig. d. Südw.-deutsch. Neurologen u. Psychiater), discussed the symptomatic significance of the optic neuritis which is so frequent in cerebral affections. GRAEFE held the increased intracranial pressure as the cause of the neuritis, while Manz ascribed great significance in the pathogenesis to the communication between the sheath of the optic nerve and the subarachnoid space. LEBER explained the neuritis by the presence of products of disintegration originating in the neighborhood of the cerebral lesions. This view, to which DEUTSCHMANN also subscribed, is, however, hardly probable, and opposed by a number of clinical facts: 1. Variations in the intensity of the papillary changes; 2. The infrequency of optic neuritis in meningitis; 3. The neuritis is very rare in encephalitis suppurativa; should exudation occur, it is serous and not purulent; 4. The neuritis seldom attends apoplectic attacks, though inflammation frequently occurs in the neighborhood of the clot.—*Wiener medizin. Pr.*, July 1, 1888.

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SATURDAY, JULY 28, 1888.

THE RELATION OF ATMOSPHERIC CONDITIONS TO CHOLERA INFANTUM.

THE belief that atmospheric heat and humidity influence powerfully the production of intestinal disease in young children has been for many years prevalent and unquestioned. With the light thrown upon the subject by the study of bacteria and fermentation, this belief has been called in doubt, and recent studies go to show that opinions must be revised, and that the influence of climate is now a moot point.

In a paper read before the New York Academy of Medicine early in the present year, SEIBERT reported the results of ten years' observations on climate and intestinal disease in children, including his personal study of 8000 cases, from which he drew conclusions unexpected alike to himself and to others. He found that a *high* temperature, moist or dry, is not necessary for an epidemic of cholera infantum. Weather, with a *minimum* daily temperature not below 60° F., invariably brings on the disease, and without regard to the maximum daily temperature. When the minimum daily temperature remains below 60° F., cholera infantum ceases to be epidemic. Hence he concludes that this disease cannot be brought about by the direct working of high temperatures on the infantile body, but must have other causes. Rainfall and wind velocity were found to be without influence.

Seibert next ascertained that the milk supply of a city begins to decompose when the temperature exceeds 60° F.; and that vegetable matter contained in the sources of water supply undergoes decomposition, sufficient to be perceptible to the senses, at the same temperature. He considers the food and drink decomposed at certain temperatures, as causes of intestinal disease in young children, and that the direct influence of climate upon the organism is not an etiological factor.

In corroboration of his views are the conclusions reached by MEINERT (*Deutsche med. Wochenschrift*, June 14, 1888), from a statistical study of infant mortality in Dresden and vicinity. He found that it was not high temperature, but the conditions favorable for decomposition which cause cholera infantum. Italy, although warmer, had a lower mortality than Northern Europe, because the atmosphere of dwellings was more constantly changed in the warmer country, and decomposition prevented. A stagnant, warm atmosphere Meinert believes to be an exciting cause of the disease. He regards the fever of cholera infantum as the invasion fever of a zymotic disease, the cause of which becomes pathogenic when the atmospheric condition described is present, and when zymotic changes occur in the child's food.

These results are especially interesting, in view of the more general use of sterilized food for infants, and the antiseptic (or antifermentative) treatment of intestinal disease. While digestion offers so many unsolved problems, we shall do well not to increase the complexity by introducing previously decomposed food; and whether bacteria, or ptomaines, or both, are the active cause of disease, it is essential to hold clear ideas regarding the relative importance of the various factors in this complex problem.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

WE have from time to time given the preliminary programmes of the several societies which are to take part in the meeting at Washington in September next, and from these, taken in connection with the announcement from the local Committee of Arrangements, which we print on another page, it seems quite certain that the meeting will be a very busy one, that some papers of unusual importance will be presented, and that, in a quiet way, due hospitality for the guests and opportunities for social intercourse will be provided.

It seems that the Executive Committee had decided that there should be nothing like a general banquet, and by placing all the work of the Congress

proper in the three evenings, made it practically impossible to have such a banquet during the three days of the meeting. Some members of the different societies wished to have an opportunity to give a dinner to their guests, and have, therefore, united in arranging for such an entertainment on the Monday evening preceding the opening of the Congress. This is, of course, entirely a private entertainment, and the invitations will be confined to the guests of the several Societies forming the Congress.

We have received several requests for information as to how volunteer papers from persons, not members of any of the Societies taking part, can be brought before the Congress, which show that the organization is not understood. The business of the Congress, as a conjoint meeting of all the special Societies, is confined to three evenings, and no papers, except those already provided for, can be presented on those evenings. It is to the individual Societies, which have their meetings during the day, that such papers should be offered.

The final announcement of the arrangement of papers and discussions is to be issued in August. It is understood that the Address of the President, Dr. Billings, will have Medical Museums as its subject.

MEDICAL LEGISLATION IN THE PROVINCE OF QUEBEC.

THE session of the Provincial Legislature of Quebec which has just been prorogued was one of great interest to the medical profession.

In the first place, the Medical Bill, which has exercised the minds of the College of Physicians and Surgeons for the past two or three years, was thrown out, to the great satisfaction of the English-speaking part of the profession. This bill provided that all the subjects of the preliminary examinations in general education should be conducted on the lines of the instruction afforded by the *cours complet* of the French colleges. Had the bill carried, it would have compelled English students either to give up the idea of entering the profession or to obtain their education at one of the French colleges. Now this education is a clerical one and includes many subjects not taught in English schools, such as old-time philosophy, rhetoric, style, etc., and leaves out a thorough instruction in those subjects which, in the opinion of Anglo-Saxons, most fit one to enter successfully on the battle of life.

The bill referred to acknowledges that a B.A. degree from our best English universities was a sufficient guarantee that the individual was qualified to enter on the study of medicine. The student forsooth, must know something of the philosophy of St. Thomas Aquinas in order to combat successfully the heretical doctrines which are now so frequently taught in schools of medicine.

The bill also provided that hereafter no degree from any university whatever should entitle a man to register as a practitioner, but that every one wishing to practise in Quebec Province must pass an examination before the College of Physicians and Surgeons. This portion of the bill was aimed at some of the universities which graduate men too easily, and whose degrees have not the high standing they should have. However, this went with the rest. It is very questionable whether men elected by the general body of the profession, and who are not teachers, are fit to examine in the more scientific branches of the profession, as their appointments are usually made for territorial and political reasons.

A very good health bill was passed which confers enormous powers on the Provincial Board of Health. It is hoped that this Board will make good use of these powers.

The registration bill which was sent up with the health bill was thrown out, so that the registration of births and deaths is still left in the hands of the churches, and the children of those persons who belong to no church fail to appear in the birth list. No certificate of the cause of death is required, so the mortality statistics are now, as they always have been, thoroughly unreliable.

THE Second International Congress for Hydrology and Climatology will meet at Paris early in October of 1889. The precise date has not yet been fixed.

THE University of Bologna has conferred honorary degrees in medicine upon the following representatives of German medicine: Liebermeister, Schiff, Koch, Billroth, Köllicker, Pettenkofer, Ludwig, Virchow and O. Hertwig.

DR. GEORGE M. STERNBERG, U. S. A., and Prof. Hirsch, of Berlin, have recently been elected Honorary Members of the Epidemiological Society of London.

DR. LÖFFLER has been made ordinary Professor of Hygiene, and Dr. Knorr, of Würzburg, the discoverer of antipyrin, Professor Extraordinary, at the University of Greifswald.

Prof. v. Liebermeister, of the medical faculty of the University of Tübingen, has been made a consulting body physician by the King of Wurtemberg.

Professor Max Fürbringer, of Amsterdam, has been elected Professor of Anatomy at the University of Jena.

Prof. Preyer, of Jena, has resigned his professorship to go to Berlin in the fall. The medical faculty of the University has unanimously decided to establish a second chair in anatomy, for which position Prof. Bardeleben is held in view.

At the Commencement Exercises of Union College, in June, 1888, the honorary degree of LL.D. was conferred upon Mr. Lawson Tait, F.R.C.S., Prof. of Gynecology in Queen's College, Birmingham, Eng.

Dr. Charles E. T. Montcalm, the great-grandson of the Marquis de Montcalm de Véran, who fell at Quebec, in 1759, died at Brooklyn, July 17th. He was born at Paris, in 1821, was educated in medicine in that city and at London, and for a time taught chemistry at the Middlesex Hospital. He was secretary to Minister Thiers and held other important positions at Court until 1845, when he went to London, incurring his father's displeasure. He inherited a fortune from his mother, and his mansion at London became a shelter for hundreds of political refugees. His father dying in 1856, he returned to France to attend to his inheritance. This was in the time of Napoleon III., who caused his arrest on political charges upwards of fifteen times, and finally his imprisonment for seven years. He escaped from France in 1864, in the disguise of a priest, and made his way back to London, only to find that his property in France had, during his imprisonment, been drained by governmental fines and charges to the point of confiscation. His home in London had been destroyed by fire while he was a prisoner, as was alleged, by agents of the Empire, for the purpose of securing or destroying certain political documents of a compromising nature. In 1866, finding himself impoverished, he left for America. He lived for ten years in New York City and during the remainder of his life in Brooklyn. He engaged in medical practice and chemical work until about three years ago, when he was compelled by cardiac disease to lay aside his labors.

SOCIETY PROCEEDINGS.

AMERICAN OTOLOGICAL SOCIETY.

The 21st Annual Meeting held at New London, Conn., July 17, 1888.

Morning Session.

Miscellaneous Business.

The Society was called to order by the President, Dr. J. S. Prout, of Brooklyn, who alluded in his opening address to the loss sustained by the Society in the death of Dr. C. R. Agnew, of New York, and suggested that action be taken.

On motion, Dr. Gorham Bacon and Dr. W. H. Carmalt were appointed to prepare an appropriate minute on the subject.

Dr. E. Williams, of Cincinnati, on account of failure of health, presented his resignation. This was accepted; on motion of Dr. Carmalt, the by-laws were suspended and Dr. E. Williams was elected an honorary member of the Society.

Dr. W. H. Carmalt presented the report of the Committee of Conference on the Congress of American Physicians and Surgeons. It was accepted and it was decided that when the Society adjourns, it do so to meet at the Arlington Hotel, Washington, D. C., September 18, 1888, at 11 A.M.

On motion of Dr. Green, it was decided that the meeting should be strictly for scientific matters and should not be regarded as a business meeting; that it should not take the place of the annual meeting.

Dr. C. H. Burnett, of Philadelphia, reported

A case of aural vertigo (Ménière's disease) relieved by excision of the membrana tympani and of the malleus.

The patient was an unmarried woman, thirty-seven years of age, who six years previously had been under treatment for chronic naso-pharyngeal catarrh and chronic catarrh of the left middle ear, accompanied with hardness of hearing, tinnitus aurium and a sense of fulness in the affected organ. Treatment of the catarrhal disease of the ear produced no benefit. After the lapse of six years, the symptoms already named grew worse and there was superadded marked aural vertigo. The membrana tympani, in the line of the malleus-handle, was found adherent to the promontory, and the consequent retraction of the entire chain of bones was held to be the cause of the aural vertigo, of the sense of fulness and of the tinnitus.

The operation of excision of the membrana tympani and of the malleus was performed under ether, May 21st last, with entire and immediate relief to the aural vertigo (which before had often been sufficient to cause the patient to hold to a lamp-post for support), to the sense of pressure and to the tinnitus, which good result has been maintained to the present time. The hearing was practically unaffected by the operation. The incus was detached from the stapes, but could not be removed, as it slipped into the attic, and grappling for it is not advisable, on account of the risk of irritation. Its removal, furthermore, would have no effect on the result of the operation.

Dr. J. O. Tansley, of New York, stated that he had now under observation a girl on whom this operation was performed some eighteen months ago. When she came to him, the whole internal canal was filled with polypi and she presented various brain symptoms. All the polypi were removed, a portion of the drum remaining, and above this was a localized necrosis, into which a probe passed at least one-fourth of an inch. The patient has been under observation every day for two months; the local necrosis is healed and she is doing well. There are still some brain symptoms. It seems that this is a very serious operation, and he would hesitate some time before performing it, on account of the results that might occur. In this case, the result seems directly traceable to the operation.

Dr. Burnett said that, in his case, a discharge appeared two or three weeks after operation. There is still a slight discharge, but the membrane is forming. In another case, a slight discharge appeared soon after the operation, but ceased after the membrane had re-formed. The case reported by the last speaker was not one of the class to which he had alluded. The operation was evidently not properly performed, if there remained a portion of the membrane and there was necrosis. He had not found this a dangerous operation.

Dr. Charles J. Kipp, of Newark, remarked that this operation has been performed a number of times by foreign operators, for the relief of tinnitus and vertigo, but has been given up because it did not relieve these symptoms satisfactorily. There were, however, no bad results.

Dr. Sexton, of New York, had performed this operation between fifty and one hundred times in the past few years, and had obtained decided benefit in a number of cases of tinnitus and other subjective symptoms. He had known of no case in which there was aggravation. In many cases in which there has been no marked tinnitus, the distressing sense of pressure has been overcome. The tinnitus is not always relieved by the operation. His principal endeavor has been to avoid re-formation of the drum membrane. In a number of cases in which this occurs, the good hearing is lost. He prevented this by the application of a solution of salicylic acid in ether to the margin of the closing membrane. This has succeeded even when the membrane has closed down to a minute opening.

Dr. B. Alex. Randall, of Philadelphia, was invited to take part in the discussions of the Society. He said that in Dr. Tansley's case the operation may have been done for the necrosis. The presence of polypi of the size referred to indicates great neglect, and the results are more probably attributable to this neglect than to the operation.

Dr. Sexton then exhibited

A NEW PORTABLE BATTERY FOR THE STORAGE OF ELECTRO-MOTOR FORCE

and

A NEW HEAD-LANTERN FOR THE EMPLOYMENT OF ELECTRIC LIGHT IN SURGERY.

The battery was made, at his suggestion, by the River and Rail Electric Light Company of New York. It consists of three cells, and will light a six-candle electric light. The lantern is a modification of that of Trouve, but much lighter, and having a non-conducting base. Such a light is almost necessary in operations on the ear when ether is used as an anæsthetic. The battery will work continuously for twenty-four hours, and will retain its power for several weeks or months. It may be charged by a dynamo or by twelve gravity cells. When not in use, the storage battery may be kept in connection with the gravity cells.

Dr. A. H. Buck, of New York, then read a paper on

REFLEX INFLUENCE IN THE PRODUCTION OF NASO-PHARYNGEAL CATARRH.

His object was to call attention to those comparatively remote exciting causes of naso-pharyngeal catarrh, which act, so far as it is possible to explain their mechanism, through the intervention of the vasomotor fibres of the sympathetic nerve. We know little of the direct exciting causes of naso-pharyngeal catarrh. The most common indirect cause is chilling of the surface of the body. According to certain authorities, affections of the teeth should rank next in order of frequency. The author has, however, seen very few cases in which dental disturbance played the part of a promoter of naso-pharyngeal catarrh or of aural disturbances. Some of those indirect causes which he has observed were then enumerated. Irritation of the gastro-intestinal canal is, in not a few instances, a strong exciting cause of naso-pharyngeal catarrh and of all the aural disturbances growing out of such a catarrh. A male, forty-five years of age, had, for years, been more or less a sufferer from naso-pharyngeal catarrh with tinnitus aurium and slight impairment of hearing, and more recently had begun to suffer from feeble digestion. He noticed that, after indulgence in certain articles, there would be abdominal discomfort and, at the same time, marked exacerbation of the naso-pharyngeal catarrh. So long as the offending substance was in the stomach, there was only a slight sense of discomfort, but, in the course of three or four hours, a slightly painful peristaltic movement would be set up in the bowels; simultaneously the secretion from the vault of the pharynx would become unpleasantly active and the tinnitus would increase. This condition would last for an hour, and then the naso-pharyngeal catarrh would return to its usual state. These attacks were accompanied with the escape of large quantities of gas by eructation. In many patients, usually men between forty and sixty years of age, in whom we have reason to believe that the gastro-intestinal tract is habitually in a state of greater or less irritation, we find the faucial mucous membrane red and swollen. In these cases, the disease which claims chief attention is the gastro-intestinal affection.

Reflex influences, involving the vault of the pharynx and the ear, may emanate from more distant sources. A lady, forty years of age, complained of distressing tinnitus, involving both ears. There had been mild naso-pharyngeal catarrh, from time to time, for many years. At times, she was almost entirely free from tinnitus. Dr. Buck always succeeded in giving prompt relief by applying to the vault of the pharynx a moderately strong solution of silver nitrate with a mop of absorbent cotton. After a time, these failed to give relief. It was then he learned that, for many years, she had suffered with pain in the pelvic regions and back, and that, at this particular time, she was suffering in a more marked degree. A specialist was then consulted and it was found that there was retroversion of the uterus and subacute parametritis. These

conditions were removed and the tinnitus disappeared without treatment to the vault of the pharynx.

He had spoken of these as indirect causes—that is, as factors competent to aggravate a preëxisting, but perhaps latent, catarrhal disease; but he saw no reason why these reflex influences may not, in certain cases, play the part of direct exciting causes. He considered it impossible to demonstrate the correctness of this belief, and therefore preferred to adopt the view which assigns to them a less independent *rôle*.

Dr. Tansley had met with many cases of naso-pharyngeal catarrh in girls, fifteen to twenty years of age, who are decidedly anæmic and chlorotic, and who suffer with constipation, and had found that this was the cause of the catarrhal symptoms.

Dr. S. D. Risley, of Philadelphia, said that it was generally admitted that nasal and pharyngeal diseases are especially liable to occur in persons of a gouty diathesis. Naso-pharyngeal disease is one of the most uniform manifestations of lithæmia. Some of the symptoms detailed in regard to the first case of Dr. Buck suggested that the digestive disturbance was probably associated with a lithæmic condition.

Dr. Burnett had seen a number of cases of tinnitus, without deafness, due entirely to dyspepsia. The use of nitrate of silver had been referred to. While this may be of service in other locations, it is the worst application that can be made to the nose or the naso-pharynx. Its use will be followed, sooner or later, by sclerosis and atrophy. It will apparently cure a hypertrophic catarrh, but the case comes to the rhinologist later with a marked atrophic process in the mucous membrane. He had entirely abandoned the use of nitrate of silver for affections of the nares.

Dr. Sexton referred to the fact that, in many cases, irritation in the mouth has been the cause of naso-pharyngeal catarrh and aural symptoms. A lady was brought to him, with intense pain in the ear and head. There was nothing in the condition of the ear to account for these symptoms. Examination of the mouth showed that she was wearing a plate to bring the teeth closer together. The gum was intensely inflamed, although the patient complained of no discomfort. The removal of the plate caused a disappearance of the pain in the ear and head.

Dr. Tansley had met with many cases in which irritation of the teeth caused aural symptoms. He agreed with Dr. Burnett that nitrate of silver should not be used in the nasal cavity. He had not made such an application for a number of years. There is in catarrh an increased thickening of the basement membrane; this tends to contraction and the tendency to contraction is increased by the use of nitrate of silver. He employs such agents as induce an exosmosis.

Dr. J. F. Noyes, of Detroit, remarked that the paper brings up the fact that it is important that, in our special practice, we should consider general practice. He had always recognized those so-called reflex causes, and had treated cases by searching out these causes. A remarkable case of a lady, who after confinement developed naso-pharyngeal catarrh, came under his notice. There was profuse secretion. The trouble continued for a year, in spite of treatment. Finally, she passed into the hands of a gynecologist. The cause was discovered and treatment of the uterine disease cured the naso-pharyngeal disease.

Dr. Samuel Theobald, of Baltimore, held that, when atrophy follows hypertrophic catarrh, it is the result not of the application of nitrate of silver but of the continuance of the catarrh. He questioned whether solution of nitrate of silver, ten to fifteen grains to the ounce, will produce sloughing, and regarded this agent as a valuable application in disease of the nasal membrane.

Dr. Charles J. Kipp, of Newark, agreed with Dr. Theobald as to the value of nitrate of silver. He rarely uses it in a stronger solution than twenty grains to the ounce, and neutralizes it afterward by salt water.

Dr. Henry D. Noyes, of New York, had frequently noticed the connection between the lithæmic condition and certain affections not only of the naso-pharynx but also of the external auditory canal. There are certain eczematous conditions of the ear associated with the gouty diathesis.

Dr. F. P. Capron, of Providence, referred to a number of cases of so-called hay-fever, in which the premonitory symptoms were those of indigestion. For two or three weeks before the time of the onset of the regular attack, the patient would complain of digestive disturbance.

Dr. A. H. Buck, of New York, then presented

A CONTRIBUTION TO THE ANATOMY OF THE ELEPHANT'S EAR.

The ear was exhibited and the interesting points indicated. The external auditory canal is imbedded in air-containing cells and is six and a half inches long. The canal at the time of examination was filled with desquamated material. In the middle ear, the handle of the hammer seems to lie in a horizontal plane. It is not vertical, as in the human being. The anterior part of the drum cavity is completely cut off from the posterior part. The Eustachian tube comes up through a system of air cells and opens through one of them close to the drum membrane. Under the floor of the tympanic cavity, there are three septa, making stall-like spaces. Two of these are quite long, six or seven inches. The labyrinth and other parts were not examined.

Dr. Huntington Richards, of New York, through Dr. Buck, reported

A CASE OF POLYPOID ANGIOMA OF THE EAR.

The patient, a girl six years of age, came under observation May 4, 1888, with profuse and badly smelling otorrhœa, unaccompanied by pain and dating only from the preceding February. Hearing seemed good. No bleeding from the ear had ever been observed. The general health was excellent.

Examination of the affected ear revealed a polypoid mass almost occluding the canal. The color was deep purplish-red. A considerable portion of the tumor was at once removed with the snare and the remainder of the growth was extracted on the following day, leaving a small pedicle attached, seemingly to the outer surface of the drum membrane close to the prominence formed by the short process of the hammer. This stump was cauterized with chromic acid. Hemorrhage from the cut surface of the growth was unusually profuse at both operations. The child's hearing is now excellent, although both membranes are depressed and of a dark grayish-red color. The removed growth was pronounced

to be an angioma. Three micro-photographs showing the appearance of the growth were exhibited.

He also reported the following

CASE OF FALSE-DRUM MEMBRANE.

The patient, a man, twenty-one years of age, was totally deaf in the affected ear. There was a vague history of an attack of otitis media in early childhood. The other ear presented the common appearance of otitis media purulenta chronica. Examination of the ear that was not discharging showed a membrane occluding the canal. It differred from the normal-drum membrane in color, shape, relation of its plane to the long axis of the canal and apparent thickness. It varied little in color from the skin lining the canal. The surface was perfectly smooth.

A triangular opening was made through this membrane. This caused no pain. Through this opening, it was seen that there was no drum membrane, but the inner wall of the tympanic cavity came into view. The hearing was only slightly improved. When seen a few days later, no discharge had appeared. Since that time he has not returned to the Infirmary.

Dr. Sexton had seen several such cases as that described in the last paper. In a case seen last year, he removed the membrane and then took out the malleus and incus. This case made a good recovery. The improvement in hearing was decided. He suggested this operation in such cases, as a possible means of improving the hearing, for it opens up the tympanic cavity, which is a good condenser of sound; and in the second place, to prevent the accidental occurrence of inflammation in these parts, when it might be difficult to obtain relief.

Dr. T. Y. Sutphen, of Newark, had seen one or two cases of this trouble, which seemed to him to be due to cicatricial closure of the external canal. It seemed that the condition would be best spoken of as cicatricial closure of the canal.

Dr. Kipp said that these cases result from granulations, and he had watched the formation of these membranes. In treating the condition, he incised the membrane and put in laminaria bougies.

Dr. A. Matheuson, of Brooklyn, remarked that a lady was under his care for some time with an eczematous condition of the external meatus. She then passed from observation. Some time later, she presented herself with a disk-like closure of the external canal. This was not complete, as there was a small opening in the centre. He dilated this opening with laminaria bougies, and the ear was left in perfect condition.

Dr. Theobald had reported a case in which there was occlusion of both external canals. There was a history of suppuration, and no doubt there was ulceration and gradual closure.

Dr. Burnett had seen several of these cases of dermoid diaphragms in the canal. Three of these were in private practice. One was in an old man, and it remained imperforate during the whole time he was under observation. The other cases were perforate when they came. There was slight discharge which was checked, and the perforation healed. In one case the discharge returned after a short time and the perforation reappeared. Under treatment it healed and had remained closed since, a period of four or five years. In the other case it remained closed for a year, when the opening returned with slight discharges. The discharge ceased under treatment, the opening closed and has remained closed.

Dr. Randall said that in the case of a boy, twelve years old, in which there was closure of the meatus as a result of injury with forceps during labor, he excised the diaphragm. The cavity was thoroughly washed out. The case was then treated in the ordinary way. The hearing obtained was certainly one-fourth of the normal.

Evening Session.

Dr. J. B. Emerson, of New York, read a paper on

THE FLEXIBLE CATHETER AS A DRAINAGE TUBE, WITH CASES.

He cited several cases exhibiting the use of the flexible catheter as a drainage tube.

With deeply seated inflammation of the auditory canal or mastoid cells, maintenance of drainage through a fistula is a necessity; and to prevent closure of the fistula, either by granular growth or natural healing, is important. He recommends the use of the flexible catheter as generally the best means to employ and states his reasons to be the comparative comfort and safety, together with the convenience of control by both surgeon and patient. The efficiency observed in the use of the flexible catheter was also referred to.

Dr. O. D. Pomeroy, of New York, said that some years ago he had recommended the use of soft rubber tubing in suppurative otitis in little children, with closure of the canal with no changes except swelling. The canals are so small that the tube cannot be pushed in in the ordinary manner. A piece of small tubing was hooked to the extremity of a notched probe which passed through it. The tube was then drawn tight, thus reducing its size. In this way it could be readily introduced; when the tube was released, it tended to resume its proper size and the probe was withdrawn. Almost all these cases did well.

Dr. Kipp then reported

THREE CASES OF TRANSIENT BILATERAL HORIZONTAL NYSTAGMUS, IN CONNECTION WITH PURULENT INFLAMMATION OF THE MIDDLE EAR.

Case I.—A young man, twenty-one years of age, had had otorrhœa seven or eight years previously. Three months before he came under observation, he had an acute exacerbation and suffered at intervals with pain in the ear and head. The otorrhœa much diminished. Two or three weeks later, he came, stating that he saw objects double, was dizzy and could not walk. There was marked nystagmus in a horizontal direction. The vertigo and nystagmus continued four days. With the cessation of the nystagmus, the vertigo disappeared.

Case II.—A young man, treated six years previously for acute otitis media purulenta ending in recovery, appeared in March, with an acute attack. Paracentesis was performed. The pain, however, continued for a long time. Finally, swelling developed behind the mastoid, and this was accompanied with several epileptiform attacks. One day, pressing on the swelling, pus poured from the canal. With this there was a sudden jerk of the head and nystagmus. The latter continued for about ten minutes. This was produced every time pressure was made on the mastoid. The mastoid was subsequently opened. Since then there has been improvement.

Case III.—A young man, after exposure, was seized with intense pain in the ear, followed by otorrhœa. When he came under observation there was great pain. This was not relieved by treatment, but continued two or three weeks. Then a swelling appeared below the ear. This was incised and a large quantity of pus evacuated, with relief to the pain. Some days later, while washing out the cavity, the fluid came through the ear when considerable force was used. At the same time, there was a jerk of the head and nystagmus continuing several minutes. This could always be produced by making a forcible injection.

Dr. Pomeroy said that reference had been made to epileptiform symptoms in one of the cases. He had recently seen a case of epilepsy in which the exciting cause was suppuration of the middle ear. With recovery from the ear disease, the convulsions ceased and have not returned.

Dr. Tansley exhibited

AN IMPROVED AURAL SNARE,

devised to overcome an objection in the ordinary Wilde snare, that is, the little jerk and rebound of the instrument when the growth is cut through. The instrument exhibited consists of a small tube, through which the wire passes to be connected with a small bobbin, by the turning of which it is gradually shortened.

Executive Session.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. J. S. Prout, of Brooklyn.

Vice-President.—Dr. Gorham Bacon, of New York.

Secretary and Treasurer.—Dr. J. J. B. Vermyne, of New Bedford, Mass.

Committee on Membership.—Dr. A. Mattheuson, Dr. D. B. St. John Roosa and Dr. John Green.

Members of Executive Committee of Arrangements of Congress of American Physicians and Surgeons.—Dr. W. H. Carmalt, of New Haven; Alternate Dr. G. Bacon, of New York. The Society then adjourned to meet at the Arlington Hotel, Washington, D. C., Tuesday, September 18, 1888.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-fourth Annual Meeting, held at New London, Conn., July 18 and 19, 1888.

Wednesday, July 18th.—Morning Session.

The Society was called to order by the President, Dr. W. F. Norris, of Philadelphia.

MISCELLANEOUS BUSINESS.

Dr. H. D. Noyes, of New York, read a memorial of the late Dr. C. R. Agnew.

Drs. W. H. Carmalt and C. S. Bull were appointed a committee to prepare an appropriate minute in regard to the death of Dr. E. G. Loring; and Dr. Charles J. Kipp was appointed to prepare a similar minute in regard to the death of Dr. Joseph Oub.

Dr. C. S. Bull, of New York, presented

A CONTRIBUTION TO THE TREATMENT OF MEMBRANOUS OPACITIES IN THE VITREOUS HUMOR.

These opacities, in the form of membranes or shreds, are rarely freely movable and usually resist internal treatment. Operation by incision with a needle was first performed by von Gräfe. In the experience of the writer, the operation had been found useful. Some opacities resulting from hemorrhage or from inflammation of the choroid respond to internal remedies, but, as a rule, these remedies fail. By incision of the membrane a direct improvement of vision may be obtained and the process of absorption may be stimulated. Posterior opacities are more easily reached, with less danger to the lens and with more favorable results than in the case of anterior opacities. The author has performed this operation in seventeen cases of chronic membranous deposits in the vitreous. In some cases, the ordinary incision needle was used, in others, a broader needle, and in a few, a slender cataract knife. Cocaine was employed in all cases. The point selected by preference for the introduction of the needle was just in front of the equator of the eye and below the insertion of the external rectus muscle. There seems in this operation to be no danger of loss of vitreous through the small opening, nor is there danger of hemorrhage. The puncture should be posterior to the ciliary process, and pressure with the forceps should be avoided. As a rule, little or no reaction follows the operation. A protective bandage is required only a few days. Antiseptics were employed in all cases.

The details of the seventeen operations on fifteen patients were given. Fourteen showed decided improvement in vision. Three were failures. There was no loss of vision from the operation in any case. The operation is appropriate in certain cases, but it is wise to wait until all inflammatory symptoms have subsided before attempting any operative procedure. The eye should be absolutely free from all irritation before surgical interference is attempted.

Dr. W. F. Mittendorf, of New York, thought that vascularity of the vitreous membrane should always speak against operations of this kind. Vascularity, even if all inflammatory signs have subsided, points to a fatal prognosis.

Dr. F. Buller, of Montreal, reported

A CASE OF PULSATING EXOPHTHALMOS CURED BY LIGATURE OF THE COMMON CAROTID ARTERY.

He had seen four cases of this affection. In the first the condition followed a blow upon the head. Some months after the appearance of the pulsatory exophthalmos, ligation of the carotid was performed, but the patient died in the course of a few weeks from repeated attacks of epistaxis. The second case has already been reported.

In the third case the affection followed a blow on the brow with a piece of iron. The patient was seized with severe epistaxis and died in a few minutes. There was found a depressed fracture of the frontal bone, with a fissure extending across the orbital roof and the body of the sphenoid bone directly beneath the cavernous sinus. As a result of caries of the bone there was a direct communication between the nasal cavity and the internal carotid artery.

The fourth case, the subject of the paper, came under

observation May 24, 1888. A man, aged twenty-eight, fell a distance of twenty feet, striking the right side of his head, rendering him unconscious for twenty-four hours. After the swelling had subsided, the patient noticed diplopia, one image being higher and less distant than the other. There was also a loud beating sound in the right ear. Two weeks before coming under observation, prominence of the eye was noticed. There was still diplopia, the higher image moving up and down with each heart-beat. Four days before coming under notice, the pain became intense. On examination there was found at the inner extremity of the right brow a swelling which imparted a distinct thrill to the finger. There was also a harsh bruit. Pressure over the common carotid artery diminished the intensity of the thrill and lessened the pulsation.

It was decided to ligate the common carotid in the upper part of its course, and this was done May 25th, two ligatures being applied and the vessel being divided between them. The immediate effect was softening of the swelling, partial reposition of the eyeball, great diminution in the pulsation and disappearance of the bruit. The patient made a good recovery, and left the hospital with very little prominence of the ball. $V = \frac{20}{XX}$. H. Movements normal.

Dr. Charles J. Kipp, of Newark, reported a case of

PULSATING EXOPHTHALMOS.

A lady, seventy-six years of age, presented herself, with the history that, shortly after striking the head in a fall, she noticed a noise in both ears, followed by protrusion of both eyeballs, the right four-tenths of an inch, the left two-tenths. There was no marked pulsation, but there was a thrill, and a bruit could be heard over the anterior half of the head. This could be arrested by compression of the right carotid artery and partially so by compression of the left carotid. In view of the age of the patient, no radical measures were recommended, but it was suggested that pressure be made on the right carotid as often as convenient. Iodide of potassium was also given. Three months later the patient stated that the noise had suddenly disappeared. This was followed by the diappearance of the exophthalmos, first in the left eye and subsequently in the right. The external appearance of the eyes is now normal. There is, however, a marked pulsation of the right subclavian artery, but no aneurism can be discovered.

Dr. D. S. Risley, of Philadelphia, called attention to the fact that Dr. Harlan had reported a case of this kind cured by compression, and that he had himself reported a case in which compression of the vessel for a short time was followed by the disappearance of the symptoms and the subsidence of the exophthalmos.

Dr. Swan M. Burnett, of Washington, presented an

ANALYSIS OF 576 CASES OF REFRACTION OF HEALTHY HUMAN CORNEÆ, EXAMINED WITH THE OPHTHALMOMETER OF JAVAL AND SCHIOTZ.

These 576 corneæ belonged to 301 persons examined within a little over a year by Dr. Burnett. Pathological states of the cornea were excluded for consideration at another time. The corneal refraction was found to be the same in both eyes to within 0.25 D. in 110 persons. The horizontal meridian (to within 5°) was the least refractive (astigmatism according to the rule) in 420 eyes. The vertical meridian was the least refractive (astigmatism against the rule) in 20 eyes. In 88 eyes the meridians were oblique. In 58 eyes the difference in the refraction of the two meridians was less than 0.25 D. In 101 eyes there was emmetropia. The largest number had a corneal refraction of from 44 D. to 45 D.; the next largest from 43 D. to 44 D. The strongest corneal refraction was 47 D., the weakest 39 D. In 55 eyes there was simple myopia. The strongest refraction in the weakest meridian was 47.25 D.; the weakest 39 D. The corneal refraction did not in any considerable number of cases bear any close relation to the degree of the myopia. Simple hypermetropia was present in 59 eyes. Weakest refraction in the weakest meridian was 40.5 D.; the strongest 46 D. As in myopia, the corneal refraction was no indication as to the degree of general hypermetropia. Myopic astigmatism was found in 140 eyes. In 4 eyes the general astigmatism was greater, and in 11 it was less than the corneal. In 14 eyes the difference in the axes of the corneal membrane and that of the prescribed glasses was greater than 5°. Hypermetropic astigmatism was present in 96 eyes. In 4 eyes the corneal astigmatism was greater, and in 2 eyes it was less than the general. The axes corresponded in all but 9 eyes. Compound myopic astigmatism existed in 63 eyes. In all but 7 eyes the corneal and general astigmatism corresponded, and in 44 eyes the axes corresponded. Compound hypermetropic astigmatism was found in 55 eyes. In 31, corneal and general astigmatic meridians corresponded. The corneal and general astigmatism was the same in all but 4 eyes. Mixed astigmatism was present in 8 eyes. In 4 the corneal and general astigmatism was the same. In 2 the corneal was less and in 1 greater than the general. Corneal and general astigmatic meridians were the same in 5 eyes. In 42 eyes the general astigmatism was against the rule, while in only 18 of these eyes was the corneal astigmatism against the rule. From examinations under a mydriatic, the author felt himself warranted in thinking that many cases of lenticular astigmatism are due to an oblique position of the lens.

Corneal astigmatism is, with very few exceptions, according to the rule (vertical meridian the stronger). From study of these statistics, the author feels warranted in concluding that while the corneal refraction gives no indication of the general refraction of the eye, its astigmatism, in the vast majority of cases, expresses the general astigmatism, both as to degree and direction of its axis, and he considers, therefore, the instrument of Javal and Schiotz one of if not the most important instrumental means for the diagnosis of the anomaly. He does not think astigmatism more productive of progressive myopia than any other form of ametropia.

Dr. Noyes had used the ophthalmometer of Javal and Schiotz with great satisfaction. In the immense majority of cases the evidences of the ophthalmometer, without the use of atropine, have corresponded with the evidences of the trial case. The amount of astigmatism and, in a general way, the axis of the astigmatism is obtained. The use of this instrument has led him to believe that mixed astigmatism is more common than we usually imagine. He also noted the influence of the eyelids in altering the curvature of the cornea, and had satisfied himself that the tension of the eye muscles modifies the

curvature of the cornea. He had also noticed in some cases a pulsation of the corneal reflex, due to the fact that the cornea was so thin that the circulation of the eye impressed itself upon it. This was seen particularly in conical corneæ. The use of this instrument does away, to a large extent, with the necessity for the employment of atropine.

Dr. Samuel Theobald, of Baltimore, inferred that the author thought that, when a mydriatic was employed, the lenticular astigmatism was done away with. His experience led him to believe that the asymmetrical condition of the lens does not at once disappear on paralysis of the ciliary muscle. The discrepancy between the total and general astigmatism may often be accounted for by this persistent asymmetrical condition of the lens. This condition gradually disappears after suitable glasses are worn.

Dr. B. Alex. Randall, of Philadelphia, could not agree with the author, that simple astigmatism is so common and predominates over other forms. Taking the records of the Hospital of the University of Pennsylvania for the last ten years, he found 4000 refraction cases determined, almost without exception, under a mydriatic. Compound hypermetropic astigmatism constituted about 40 per cent.; compound myopic astigmatism constituted 30 per cent.; simple myopia and hypermetropia about 8 per cent. and 12 per cent. respectively; mixed astigmatism, only about 1 or 2 per cent.; compound astigmatism constituted at least 70 per cent. of the total number of cases.

Dr. Edward Jackson, of Philadelphia, exhibited

A NEW FORM OF CATARACT KNIFE,

designed to combine the advantages of the Gräfe and Beer knives. The point, resembling that of the Gräfe knife, allowed the puncture and counter-puncture to be made in the same way as with the Gräfe knife; whilst the rest of the blade, having the shape of Beer's knife, enabled one to complete the incision as with that instrument. With it the puncture and counter-puncture are completely under control, the flap is completed at a single thrust, the aqueous is not lost until the incision is nearly finished, and the counter-pressure, by the back of the knife, assists in steadying the eye.

Dr. Edward Jackson read a paper on

ŒDEMA OF THE CHOROID AND RETINA.

He reported the case of a young man, struck in the eye with a marble or small stone, causing a bruise of the eyeball. The ophthalmoscope showed localized swellings of the choroid and retina at the posterior pole of the eye; the choroidal spots having the usual grouping of ruptures of the choroid in that region. These spots disappeared in about a week. There was also at first some 0.75 D. myopic astigmatism, which gradually diminished, and in three weeks entirely disappeared, leaving the sight perfect.

Dr. W. F. Mittendorf, of New York, then presented a paper on

SYMPTOMATIC MYOPIA.

But little attention has been called to myopia as a symptom of various affections of the eye. Three-fourths of the cases of myopia may be spoken of as: axillary, refractive and symptomatic. The latter form may be caused by traumatism, but more commonly by diseased conditions. It may be produced by displacement of the lens forward. More frequently it is due to swelling of the lens accompanying beginning cataract. This is sometimes relieved by the use of concave glasses; very strong glasses being occasionally required. Plastic exudations may also cause myopia, but these usually so interfere with vision that it is impossible to demonstrate the existence of myopia. Glaucoma, serous choroiditis and iritis are frequently accompanied with myopia as a symptom. A number of illustrative cases were cited. In these cases the myopia was not permanent, but as the disease disappeared the myopia passed away, leaving the refractive condition of the eye the same as before the attack.

Dr. J. O. Tansley, some years ago, reported a case of localized exudative choroiditis just beneath the macula, with myopia. The myopia gradually increased as the attack reached its height, and as the inflammation subsided the myopia passed away.

Dr. Carl Koller, of New York, thought that, in these cases of myopia in iritis, the condition might be due to the irritation of the ciliary muscle. There is hyperæmia of the ciliary body, and as the irides are contracted it is to be supposed that the ciliary muscle is also contracted. Although atropine may be used, there is not full dilatation of the irides. It is, therefore, reasonable to suppose that the myopia is a result of spastic contraction due to inflammation.

Dr. Risley said that in a few instances it had seemed to him that in these cases of iritis and choroiditis the myopia was due to the dread of light and the cramp of the lids.

Dr. John Green, of St. Louis, had, in two attacks of iritis, of which he was himself the subject, carefully studied this myopia. In his case the eyes were completely under the influence of atropia. The pupils were dilated and the ciliary muscle paralyzed.

(To be concluded.)

CORRESPONDENCE.

THE DANGERS OF COCAINE.

To the Editor of The Medical News,

Sir: Dr. Sims's case of death from cocaine, in The Medical News of to-day, carries its own comment.

In my recent reprint—at command of any desiring it—more than 120 cases, some of them fatal, of toxic effect from this drug are cited. In a second edition, nearly ready, several others—one lethal—will be noted, proving, beyond dipute, the statement in The Medical News of April 9, 1887, that "it certainly seems of the greatest importance that the profession in general be reminded that cocaine is not to be used recklessly and without proper care;" and that of *The Medical Press and Circular* of May 23, 1888, that "We do not know the lethal dose of cocaine, and we are not certain of its physiological action, nor do we know the influence of age and disease on its action, but we do know that a powerful therapeutic agent should be used with extreme care when there is so much uncertainty as to its effects;" and that of *The British Medical Journal* of January 21, 1888, that "If it were needful to produce more proof of the unsoundness of Dr. Hammond's statement, Dr. Mattison has effectually done this." Yours, very cordially,

J. B. Mattison.

314 State St., Brooklyn, July 21, 1888.

NEWS ITEMS.

The Congress of American Physicians and Surgeons.—The Committee of Arrangements announces that the arrangements are sufficiently advanced to assure the success of the First Triennial Session of the Congress of American Physicians and Surgeons, which will be held in the city of Washington, during the 18th, 19th, and 20th of September next.

A number of distinguished foreign physicians and surgeons have signified their acceptance of the invitation to attend, among whom may be named Sir Spencer Wells, Sir Andrew Clark, Sir William MacCormac, Drs. W. O. Priestley, William Ord and Grainger Stewart, Mr. Lawson Tait, Mr. Victor Horsley, Mr. Thomas Bryant, Mr. Thomas Annandale, Professors Ferrier, Esmarch and Gerhardt, Drs. Rafael Lavista, of Mexico, and J. L. Reverdin, of Geneva.

The preliminary programmes of the participating societies have already been published. The classified and final programmes will be printed and distributed at an early day.

Places of meeting for the Congress and each of the Societies have been secured, conveniently located, so that members may interchange attendance without annoyance. All the sessions will be open to the profession.

The meetings of the Congress will be held in the evenings, beginning at 8 o'clock P. M.; on the evenings of the 18th and 19th the meetings will be held in the main hall of the Grand Army Building, 1412 and 1414 Pennsylvania Avenue, and on the last (Thursday) evening in the Hall of the National Museum. During this evening the Army Medical Museum and Library building, alongside of the Museum building, will be lighted and opened for the inspection of the members and invited guests.

The meetings of the special societies will be held during the day, according to the programme of each, at the following places:

American Surgical Association, Main Hall, Grand Army Building, 1412 and 1414 Pennsylvania Ave.

Association of American Physicians, Hall No. 1, Grand Army Building, 1412 and 1414 Pennsylvania Ave.

American Climatological Association, Hall No. 2, Grand Army Building, 1412 and 1414 Pennsylvania Ave.

American Laryngological Association, Hall No. 3, Grand Army Building, 1412 and 1414 Pennsylvania Ave.

American Dermatological Association, Parlor in Willard's Hotel.

Association of Genito-Urinary Surgeons, Parlor in Willard's Hotel.

American Neurological Association, Parlor in Willard's Hotel.

American Orthopedic Association, Welcker's Hotel, Fifteenth Street N. W.

American Otological Society, Arlington Hotel, Vermont Ave.

American Physiological Society, Army Medical Museum.

American Ophthalmological Society, Arlington Hotel, Vermont Ave. and H Street.

American Gynecological Society, Columbian University, Fifteenth and H Streets N. W.

American Association of Obstetricians and Gynecologists, National Medical College Building, H Street N. W.

On Monday evening, September 17th, a dinner will be given by members of the Congress to the guests of the participating societies. It will be limited exclusively to members of the Congress and invited guests. Members desiring to participate are requested to notify the Chairman of the Committee of Arrangements.

An informal collation will be served at Willard's Hotel on Tuesday evening, after the adjournment of the session of the Congress. A similar entertainment will be served in the National Museum building on Thursday night, after the final adjournment of the Congress.

The Secretaries of the special Societies are requested to forward to the Chairman the names and addresses of their foreign guests.

Guests are requested to notify the Chairman immediately after their arrival in Washington, of their address and whether they have ladies with them, for the entertainment of whom special arrangements will be made.

Members of the Congress and the guests are expected to register. A Registration Office will be opened in a parlor in Willard's Hotel, from which the mail of the members and guests will be distributed, and at which the city residence of each member or guest can be ascertained.

All communications to the Committee of Arrangements should be addressed to Samuel C. Busey, M.D., Chairman, 1545 I Street, N. W., Washington City.

The British Laryngological and Rhinological Association, recently constituted, held its first general meeting on June 29th, and Sir Morell Mackenzie was elected President, and Mr. Lennox Browne, Dr. G. Hunt Mackenzie and Dr. P. C. Smyly, Vice-presidents.

Investigations, by Dr. Makara, into the Etiology of Carcinoma, are in progress at the surgical clinic of Prof Kovác, at Budapest. The results thus far are negative; specific microörganisms were found neither in carcinoma nor in sarcoma.—*Münchener medizin. Wochenschr.*, July 3, 1888, from *Pest med. chir. Presse*, No. 27.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 24 TO JULY 30, 1888.

VICKERY, RICHARD S., *Major and Surgeon* (U. S. Army).—Leave of absence extended two months.—*S. O. 166, A. G. O.*, July 19, 1888.

CORSON, JOSEPH K., *Assistant Surgeon* (U. S. Army).—Leave of absence for one month, with permission to apply for an extension of one month.—*S. O. 78, Headquarters Department of the Columbia, Vancouver's Barracks, Washington Territory*, July 13, 1888.

DAVIS, WILLIAM B., *Captain and Assistant Surgeon* (U. S. Army).—Will proceed to Fort Niagara, New York, for the purpose of completing his target practice for this year with Company "C," Twenty-third Infantry. Upon completion of this duty, Captain Davis will return to Fort Porter, New York.—*S. O. 145, Headquarters Division of the Atlantic, Governor's Island, New York City*, July 17, 1888.

ROBERTSON, REUBEN L., *Assistant Surgeon* (U. S. Army).—Is relieved from duty at Fort Keogh, Montana Territory, and will report to the commanding officer at Fort Buford, Dakota, for duty at that post, and by letter to the commanding general, Department of Dakota.—*S. O. 167, A. G. O.*, July 20, 1888.

WOOD, LEONARD, *First Lieutenant and Assistant Surgeon* (U. S. Army).—Is relieved from duty at Fort Huachuca, Arizona Territory, to take effect at the expiration of his present leave of absence, and will report to the commanding officer, Fort McDowell, Arizona Territory.—Par. 14, *S. O. 162, A. G. O.*, July 14, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, AUGUST 4, 1888. NO. 5.

ORIGINAL LECTURES.

THE CEREBRAL PALSIES OF CHILDREN.

Clinical Lectures delivered at the Infirmary for Nervous Diseases.

BY WILLIAM OSLER, M.D.,

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LECTURE IV.

SPASTIC PARAPLEGIA.

SYNONYMS.—Paraplegia cerebralis spastica (Heine). Tetanoid pseudo-paraplegia (Seguin). Spastic spinal paralysis (Erb). Tabes dorsalis spasmodique (Charcot).

Spastic paralysis of the legs is a common affection, and yet it is only within the past few years that the subject has attracted much attention from writers on diseases of the nervous system. The orthopœdic surgeons have for years past described and figured cases of this sort in children, which in reality form no inconsiderable quota of the patients at their clinics. Heine, as early as in 1840, gave an admirable account of it and expresses the modern conception of the disease in the name which he applies —*paraplegia spastica cerebralis*. Delpech, Stromeyer, Adams and more particularly Little, describe it in their works already referred to. Erb[1] and Seeligmüller,[2] in Germany, and Gee,[3] in London, brought the subject to the notice of physicians, and the former author described the cases with those of spastic paraplegia of adults. Ross,[4] Hadden,[5] Gowers,[6] d'Heilly[7] and Gilbert[8] have more recently dealt with the question, and the disease is now usually assigned a place among the cerebral palsies of children.

SYMPTOMS.—The general features of the disease may be thus defined: Spastic paralysis of the lower extremities dating from birth, or coming on within the first years of life; absence of wasting; a condition of talipes equinus or equino-varus; adductor spasm, producing the "clasp-knife rigidity;" the gait stiff, the patient walking on the toes, or there may be cross-legged progression. The intellect is usually impaired, though not so profoundly affected as in bilateral hemiplegia.

Case I.—Samuel B., æt. fourteen years. Parents alive and healthy. Three other children, one died of cholera infantum. Born at term, instruments not used, labor easy. "Nervous" at birth. At about nine months began to cry out at nights and would draw up both feet as if in great pain. Never stood alone or walked. Now with assistance can walk a little. Cannot read; mother says he can sing. Cannot speak at all distinctly; voice very thick. Sits bent over double, head hanging on chest; cannot sit upright for more than a moment. Moves head and body constantly. Knee-jerk marked. Ankles, knees and hips stiff. Feet turned out at ankle, knock-knee. In walking, puts toe to ground first. Pupils equal. Expression idiotic. Neck large, circumference fourteen inches. Trapezius and sterno-cleido muscles much enlarged. Tongue long. Teeth: two upper incisors a little chisel-shaped; lower teeth well formed. Head diameters: biparietal, five and one-quarter inches; occipito-frontal, six and one-half inches. Hands strong, well developed. Heels much drawn up. Can flex legs and feet. Ankle clonus present. Muscles of legs not so well developed as those of arms. Spine flexible, no scoliosis.

Case II.—Veria M., æt. thirteen years. Mother living, father killed. Five children living, four dead. Two born dead, one by craniotomy. This child born at eight months; no forceps; labor long and hard. Nursed at breast; spasms at four months and again at six. Never could walk alone until fourth or fifth year. *Present state:* Left leg twenty-four and one-half inches long. No ankle clonus. Right leg twenty-five and one-half inches long. Knee-jerk + +. Gait spastic; cannot walk without crutches. Patella drawn above condyles of femur by quadriceps extensor. Dentition tardy. Arms normal. Head: biparietal diameter, five and one-quarter inches; occipito-frontal, seven inches; circumference twenty and three-eighths inches. Bright, but queer.

Case III.—Addison D., æt. nine years. M. 5, 342. Deformity first noticed at fourteen months. Has never walked, sits doubled up with spine curved. Thighs look large, owing chiefly to large development of fat. Thigh can with difficulty be flexed on abdomen, pelvis rises on flexing thigh; knee very stiff, but can be gradually overcome. Legs much wasted; knee-jerk −. Toes are flexed and he cannot move them. Foot everted. Creeps about and walks with assistance on the outer side of his feet. Head well shaped: biparietal diameter six inches; occipito-frontal, seven inches; circumference twenty-one inches. Intelligence good, can read. Distinct nystagmus, convergent strabismus. Teeth well formed. Arms normal. Electrical examination: responds actively to faradization.

Case IV.—John P., æt. four years. I. P., 4, 4. Parents healthy. Had convulsions at ten months; paralysis of legs, which are rigid. Now creeps on knees, equino-varus of both legs; reflexes +.

Case V.—George N., æt. five and a half years. I. P., 4, 20. Natural labor, never had convulsions. Whooping-cough at four and a half years. Christmas, 1883,

[1] Erb: Virchow's Archiv, Bd. lxx.
[2] Seeligmüller: Jahrbuch für Kinderheilkunde, Bd. xiii.
[3] Gee: St. Bartholomew's Hospital Reports, vol. xiii.
[4] Ross: Brain, vol. v.
[5] Hadden: Brain, vol. vi.
[6] Diseases of the Nervous System, vol. i.
[7] Revue men. des Maladies de l'enfance, 1883–84.
[8] Revue médicale de la Suisse romande, 1887.

began to get restless and uneasy. Was treated for worms, and passed some. Then became weak in the legs. The right leg first became weak, then in January, 1884, the left. The weakness steadily increased. Now the legs are rigid; spastic contraction of muscles of feet; talipes equinus; walks on toes. Is bright. Reflexes increased. No special disease.

Case VI.—Robert G., æt. four years and nine months. M. 6, 48. Only child. Born with instruments, cried for eight hours steadily after birth. In twelve hours a large lump formed in left occipital region. This was lanced and a clot of blood removed. Intelligence good up to fifteenth month. At two years of age said to have had tubercular meningitis. Intelligence impaired ever since. Never had a convulsion. Has a depression at anterior fontanelle, which has a hard base. Says about a dozen words, not particularly fretful. Knee-jerk +. "Lead-pipe" leg; both legs nearly equal in stiffness; no wasting. Progresses by lifting his weight on his arms and throwing his body forward; cannot walk. Arms are strong. Nystagmus present. Phimosis. Teeth are in a state of decay and discoloration.

Case VII.—Frank W., æt. six years. M. 6, 100. A large baby, born with instruments, very long labor. Only child. Mother contracted syphilis six weeks before childbirth, and had a suppurating bubo. Began to walk at eighteen months, but never walked well, always stiffly. Teething a little tardy. Improved in walking till two years ago, when he had several spasms in rapid succession for twenty-four hours, which left him weak. The spasms came on in A.M. about 3 o'clock, did not gain consciousness until 5 P.M. Had much fever; was ill a week. Talked and walked more since the spasms. Has had slight spasms since. Last May had a series of very severe spasms. No stiffness in arms. Legs both spastic, toes turned in. Falls often. Has a very peculiar stiff gait, toes on ground; some incoördination in hands, particularly the left; picks up objects with difficulty; fingers very clumsy. Stiffness of legs most in extension. Feet extended. No nystagmus. Has headache at times. Knee-jerk + on both sides; no clonus. Slobbers a great deal. Does not talk well; says many words. A slight internal strabismus. Biparietal diameter, five and a quarter inches; occipito-frontal seven inches; circumference nineteen and seven-eighths inches.

Case VIII.—Stella H., æt. six years. I. P. B., 73. Never had fits; sickly from birth; no note as to labor. Had a fall at twenty-two months. *Status præsens:* Limbs well developed. At times limbs limber, but often rigid. Leg flexed, toes turned very much in. Can move legs, but cannot stand without assistance. After some effort rigidity is overcome. Arms normal. Electro-muscular contractility normal.

Case IX.—Mamie McD., æt. three years and two months. M. 7, 75. Mother died of phthisis. Born at seven months, no instruments used, labor natural. Always weak; measles three months ago; very severe spasms and crying spells, unconscious fifteen to thirty minutes. Can stand alone for a minute; can walk when supported, cross-legged progression and walks on tiptoe. No special stiffness except when walking. Knee-jerk + +. No ankle-clonus. Ankles inverted; movements of hip-joints normal. Hands not affected. Has night terrors. Intelligence good. No nystagmus. After five months treatment much improved.

Case X.—Violet M., æt. one years and four months. I. P. 4, 46. First child in twenty-three years of married life. Two miscarriages. Labor natural and quick. Child weighed four pounds at three and a half weeks. Fed on bottle. Cholera infantum. No fever, no convulsions. The hands and arms are thin and never have developed well. Motion with them is very much impaired; difficulty in grasping or holding an object. Can walk with difficulty. Head brachycephalic. Intelligence poor. Knee-jerk +. February 15, 1888, is four years old. Has not been able to sit alone; cannot walk. Can say a few words, "papa" and "mamma"; understands everything; looks bright; has intelligent smile. Bad tempered; cries a good deal; dribbles much. Head: bi-parietal diameter, five inches; occipito-frontal, five and three-quarters inches; circumference, seventeen and three-quarters inches. No squint; no nystagmus. Teeth decayed. Had a convulsion last winter. The mother says that the child is like a *rag*. Arms flaccid; hands open; cannot pick up things; muscles ill-developed; a little stiffness of right arm. Legs extended, stiff, moves them about; feet extended, bent with difficulty. Gets very stiff at times, could almost be lifted by the legs. Plantar reflexes good. Sensation good.

FIG. 1.

Position of child in walking.

Case XI.—Joseph J., æt. twenty, colored. Sent to the Infirmary from a distance, and no history could be obtained except that his parents are healthy and that the present trouble had lasted from infancy. Patient is a well-grown lad, and has been accustomed to help at farm work. He is weak-minded, and cannot give a very satisfactory account of his past condition. He has an intelligent looking face, forehead is low. Speech is imperfect, clips the words, and it is often hard to understand him. He has not much education; can read a little. The arms are well developed; uses the hands and fingers well. The legs are muscular, of equal length. When recumbent he can flex them at the knee and hip-joint, though they are somewhat stiff and there is adductor spasm. He walks with a spastic gait, the legs stiff, the thighs adducted and the toes kept close to the ground. The legs cross at each step, as shown at Fig. 6. The entire foot is placed on the ground. The arms are used to maintain the balance, and the body surges from side to side with each step. The knee-jerk is much increased, the ankle clonus can readily be obtained; superficial reflexes also increased.

The condition of the legs in these cases is practically identical with that in the spastic biplegias, and there are instances which link the two groups together. Thus, in Case II. there was inability to use the hands properly and the right arm at times became stiff, and in Case X. the elbows were occasionally stiff, though at the examination there was no trace of it.

That in spastic paraplegia the cerebrum is less profoundly affected is shown by the greater number of children who are bright and intelligent and who ultimately learn to walk. Of the eleven cases, three were mentally well developed; the others presented various grades of feeble-mindedness. Six could speak plainly; in four articulation was defective, and Case X. could only utter a few words. Only one case had strabismus, and in two nystagmus was present.

In many cases the history was defective. In only three were there difficult labors, two requiring the forceps. The paramount influence of abnormal conditions of birth or of parturition in producing this condition is well illustrated in Little's cases, of which I think twenty-four can be selected as paraplegic. Of these, in twenty-three there was either difficult labor or premature delivery; six were first children. In only one instance were the forceps applied, but we must remember that in the fourth and fifth decades of this century the forceps were not used so often as they are at present. In none of Little's cases did the feet present, a point observed by Ross[1] and others.

The stiffness of the legs may not be noted for some months after birth, but usually on washing and dressing the child the mother notices the rigidity. The child is late in attempting to walk, and then the awkwardness and stiffness of the legs become more evident. When standing the attitude is most characteristic — there is talipes equinus, varying from the slightest raising of the heel to a position in which the child actually stands on tiptoe. The heels are usually everted and the knees approximated, owing to the spasm of the adductors, which, with the gastrocnemii, become hard, tense and prominent. In most cases, owing to the elevation of the heels, the body is supported on the balls of the toes. Fig. 2 represents the foot-marks in Case 9 as the child walked, with the soles chalked on a black surface. In other instances, as shown at Fig. 3, the entire foot may be set down at each step. Owing to the extension of the limb as it is being moved forward to take a step, the toes do not always clear the ground, but drag, so that the shoecaps are usually much worn. The strong adductor action produces a remarkable crossing of the legs, and each foot is dragged over and planted in front of, or even to the other side of its fellow. This is very well illustrated in the figures. When extreme, as in Fig. 3, which is taken from Case XI., the body is thrown from side to side in walking, and the arms are kept apart to help maintain the balance. In some instances the adductor spasm is so great that the thighs rub at each step and one foot is shuffled before the other in a series of extremely short steps. The trousers may be rapidly worn out at the inner aspect of the knees in consequence of the constant friction. In attempting to flex the legs there is marked resistance, which gradually yields, and the limb can be bent, as Dr. Weir Mitchell has expressed it, like a bit of lead pipe. The term "lead-pipe" contraction is often used at the clinics to designate this condition. The adductor spasm may be so extreme that it is impossible to separate the thighs—clasp-knife rigidity. When at rest the spasm may relax, but any attempt at movement or an effort on the part of the doctor to flex the leg will at once induce it. Ultimately there may be constant flexion of the legs, with permanent contracture.

Fig. 2.—Showing spastic gait in Case IX.
Fig. 3.—Illustrating cross-legged progression in Case XI

[1] Loc. cit.

The reflexes are increased. The knee-jerk is almost invariably present, though in very young children it is sometimes not an easy matter to elicit. The ankle clonus, as a rule, is not to be obtained. It was present in Cases I. and XI.

Sensation is not impaired. Trophic lesions were not noticed. The functions of the bladder and rectum are unimpaired.

In brief, the symptoms of this affection in children are almost identical with those of adults, and the earlier writers on spastic paraplegia classed the cases together. Heine long ago expressed the opinion that these cases in children are of cerebral origin, and this is now generally accepted on the following grounds: 1. The frequent coexistence of symptoms indicating cerebral defects, such as idiocy, imbecility, nystagmus and the like. 2. The occurrence of cases of bilateral spastic hemiplegia, in which the paraplegic symptoms are identical with those of tabes spasmodique—cases, moreover, in which the evidence is usually very clear of the existence of profound cerebral disturbance. All gradations are met with, from pure spastic paraplegia with perfect use of the arms, to instances of the most extreme bilateral spasm with or without disordered movements. 3. The paraplegic and diplegic cases present identical histories, and a large proportion of the cases in each group are birth palsies, the result of abnormal parturition. 4. As the diplegic cases have been shown to depend upon symmetrical disease of the motor areas with, in many instances, descending degeneration, the conclusion has not unnaturally been drawn that the paraplegic form was the result of a similar though less extensive lesion. Ross,[1] Hadden[2] and Gowers[3] take this view; d'Heilly[4] thinks that there is not necessarily involvement of the brain, but that it may be a primary degeneration of the lateral tracts.

THE MORBID ANATOMY of infantile spastic paraplegia remains to be worked out. In a tolerably careful review of the literature, I can find but one record of a carefully performed section in a case of this kind. Förster,[5] in a report of the Dresden Children's Hospital, among the spastic palsies, gives the following case: Boy, aged two. No history of the parents or of the delivery. At the age of one and a half years the paralysis was noticed, and he began to use the few words of speech which he had acquired. When seen at about the age of two, the arms were normal, the legs stiff, adductor spasm. When attempting to walk he stood on the outer aspects of the feet with the heels raised. Knee reflexes exaggerated. Intellect feeble. The case appears to have been one of true spastic paraplegia. The post-mortem, by Birch-Hirschfeld, showed a moderate grade of general cortical sclerosis, with slight dilatation of the ventricles. The basal ganglia were normal; no note as to pyramidal tracts on crus or medulla. The cord was firmer than normal, and the lateral tracts presented a gray-white translucent aspect, which was regarded as a descending degeneration, the consequence of brain lesion.

DIAGNOSIS.—The diagnosis of spastic diplegia and paraplegia is usually easy, but there are cases from which they must be carefully distinguished and which, at times, closely simulate them. The condition described by writers on children's disease as *idiopathic contraction with rigidity; tonic contraction of the extremities*, the *contracture* of the French writers is very apt to be confounded with true spastic paralysis and *vice-versa*. The confusion which exists is illustrated in several recent papers, notably those of Onimus[1] and Launois[2] and the thesis of Simard.[3] The majority of the cases reported by these writers belong to the category of spastic paralyses due to cerebral disease.

The chief differences between these conditions may be thus tabulated:

Pseudo-paralytic rigidity.	*Spastic paralysis: di- and paraplegia.*
Follows a prolonged illness. Is often associated with rickets, laryngismus stridulus and the so-called hydrocephaloid state.	Usually exists from birth. History of difficult labor, of asphyxia neonatorum or of convulsions.
Begins in hands as carpo-pedal spasm; often confined to hands and arms.	Arms rarely involved without legs, and not in such a marked degree.
Spasms painful and attempts at extension cause pain.	Usually painless.
Intermittent and of transient duration.	Variable in intensity but continuous.

The history, the limitation in many instances to the arms, the existence of rickets or other constitutional disturbance renders clear the diagnosis. The spasm in idiopathic contraction may be extreme, the arms adducted, the forearms strongly flexed and the hands clenched on the chest. In none of the cases of spastic diplegia have I met with such inflexible rigidity of the arms as existed in a rickety child which I saw with Dr. Major, of Montreal. From tetany, which in children is closely related to the carpo-pedal spasm, and occurs under similar conditions, the distinction would rest largely on etiological considerations. In early life the association with rickets and diarrhœa, and the greater involvement of the upper extremities are features of tetany,

It must not be forgotten that tumors of the pons and of the cerebellum may produce a bilateral rigidity when the motor paths are involved or compressed. Tubercular growths of the cerebellum seem specially liable to induce this symptom. In the Gulstonian Lectures for 1886, Sharkey[4] reports four cases, in each of which the tumor occupied such a position that it compressed either pons or medulla.

[1] Loc. cit. [2] Loc. cit. [3] Loc. cit. [4] Loc. cit.
[5] Jahrbuch für Kinderheilkunde, Bd. xv.

[1] Revue men. des Maladies de l'Enfance, 1883.
[2] France Médicale, 1884.
[3] Thèse de Paris, 1884, No. 85.
[4] Spasm in chronic nerve disease, London, 1886.

ORIGINAL ARTICLES.

A CASE OF LAPAROTOMY AND INTESTINAL SUTURE FOR GUNSHOT WOUND OF THE ABDOMEN: DEATH FROM ACUTE PERICAROITIS.

BY ROSWELL PARK, A.M., M.D.,
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ON the 6th of March, 1888, I found myself in Bradford, Pa., on a semi-professional errand. On leaving the train, I was accosted by a friend and urged to hasten at once to one of the banks, where the cashier had been assailed by a masked robber.

I lost no time in proceeding there, and, on arriving, found a gentleman, thirty-two years of age, lying on a mattress in a rear room, and learned that he had been shot completely through the body. Several physicians were already in attendance, and, invited by them, I made a casual examination. I found that the bullet had passed back of the middle plane of the body, just below the false ribs. The wound of entrance was just below the margin of the liver, and that of exit in a corresponding position on the left side, a little nearer the back. When I first saw the man he exhibited a severe degree of shock. Stimulants were freely administered, and he was conveyed to his house by those in attendance. He was placed, for the time being, under my care. I could not but conclude that the intestines had been wounded, and could only advise an exploratory laparotomy. I had with me only my ordinary pocket-case, being utterly unprepared for any such operation. From several of my professional friends in Bradford I borrowed other instruments, sufficient for the necessities of the case. At the drug store I had sponges prepared hastily and silk sutures boiled, and in various ways, as best I could, I prepared for the operation.

The patient had been injured at eleven o'clock in the forenoon; at about three the operation was begun. In the meantime he had rallied well from the shock, and was urgent that the operation should be undertaken. I was assisted by Drs. Nichols, Murdock, Van Scoy, Freeman and others, and most of their professional brethren were present. Incision was made in the middle line, chloroform being the anæsthetic. There was a good deal of blood in the cavity of the pelvis, to remove all of which I had to prolong the incision downward and to lift out all the pelvic viscera. There was no injury to any of the pelvic contents. Exploring higher, I had to extend my incision well toward the sternum, and then found that blood was trickling from some injured point well up toward the diaphragm. After long, careful and diligent search, I found a perforation in a loop of small intestine up behind the colon. There was no tendency to eversion of its mucous lining, so I closed it with a Lembert continued suture of fine silk; but the bleeding did not come from this point. On exploring further, it was only after lifting up the stomach that in a neighboring concealed loop I found another perforation with eversion and a long rent along the mesenteric border. These were also closed with Lembert sutures, but with great difficulty, since they lay so deeply, and since the mesentery was so short. After careful examination, I could find nothing more in the abdominal cavity; so I closed the abdominal wound with numerous silver sutures. The wounds of the abdominal parietes I irrigated and drained with very small rubber tubes, and closed with an antiseptic, occlusive dressing.

The operation altogether consumed about one hour and forty minutes. It was of necessity longer than would have been the case had the conveniences at hand been better. The patient rallied from the shock, was given morphine hypodermatically, and became comfortable through the night. He was only disturbed by belching of gas, which occurred frequently. The next morning his temperature was 99¼°, his pulse 110 and his general condition most satisfactory. My business taking me to an adjacent town, I did not see him again until 2 P. M. of the second day. I learned, however, from Dr. Nichols, in whose immediate care he remained, that late the previous evening his pulse began to fail and his temperature to rise. At 1 A. M. he evidently began to sink, and toward morning became unconscious. There had not been any distention of the abdomen, and his pulse did not present the usual features of the pulse of acute peritonitis.

When I saw him at 2 P. M. he was comatose; his pulse scarcely perceptible. The abdomen had shrunk rather than distended, so much so that his dressing seemed a little loose. On placing my ear over the heart, a very loud pericardial friction sound was heard. This was so loud, in fact, as almost to obscure the other cardiac sounds; but he was beyond help and died at 3 P. M., fifty-three hours after the injury, and forty-seven hours after completion of the dressing.

A partial autopsy was made the next day by Drs. Nichols and Straight. They informed me that the wounds we had sewed were found perfectly united, that no leakage had taken place, that in some places the stitches were covered out of sight by plastic lymph. Only slight local peritonitis was found, and the long incision in the abdominal wall had healed by first intention. There had been no hemorrhage, and altogether everything in the abdomen was in as satisfactory a condition as could be expected or desired. The thorax was not opened; consequently nothing can be told about the pericardium.

Here was a desperate case of gunshot wound of the intestine with operation performed under trying circumstances, without adequate facilities, and death occurred from a most unexpected complication. That acute pericarditis is an occasional result of surgical conditions of greater or less magnitude is a fact not unknown, though we are still utterly in the dark as to its etiology. In the case at hand, for instance, time had not elapsed for any septic complication, nor was there the slightest evidence of sepsis, either clinically or post-mortem. Various authors on diseases of the heart are peculiarly reticient on this subject, and the case seems of interest, as much on account of its termination and the cause of death as for any other of its peculiar features.

THE PHYSIOLOGY OF THE NOSE.

By F. H. BOSWORTH, M.D.,
PROFESSOR OF DISEASES OF THE THROAT IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE, NEW YORK.

Popular conception of the nose, from time immemorial, has regarded it mainly as the organ of the sense of smell. This view has, I think, been accepted by medical observers up to comparatively recent

times. The ancients believed that respiration was for the purpose of cooling the blood. Helvetius, in 1729, supporting this view, adduced as an argument in its favor, the fact that the area of the pulmonary vein was larger than that of the pulmonary artery. In 1823, Friederich Hempel[1] asserted that the air was heated in the lungs, making no reference to the nose or mouth as bearing part in this function, regarding the nose as an organ to test the quality of the inspired air, before it passes into the lungs. In 1829, Magendie[2] says, "By successively traversing the mouth, nasal cavities, pharynx, larynx, trachea and bronchi, the inspired air becomes of a similar temperature with the body. . . . . The inspired air is charged with vapor which it carries away from the mucous membrane of the air-passages, and in this state always hot and humid, it arrives at the pulmonary lobules." In the same year, Adelon[3], making no mention of the functions of the nose in respiration, speaks of the moisture of the expired air having its sole source in the lungs. In 1844, we find Dunglison[4] making the following statement: "In passing through the mouth, nasal fossæ, pharynx, larynx, trachea and bronchi, the inspired air acquires pretty nearly the temperature of the body." As early as 1845, however, we find appearing in medical literature, evidence of the recognition of other and important functions as belonging to the nasal chambers, independent of the other portions of the upper air-tract. The first evidence of this I find given by Vierordt[5], who, I think, was the earliest to emphasize the fact that the air is raised in temperature in passing through the nasal chambers, thus recognizing the fact that the other portions of the upper air-tract contribute no part in this important function.

In 1864, we find Nestor Gréhant[6] investigating this subject experimentally. His apparatus consisted of a glass tube containing a thermometer, through which the expired air was made to pass by inserting the tube in the mouth. To protect the thermometer from the temperature of the surrounding air which might thus vitiate the experiment, the tube containing it was enclosed within a second tube, and the space between was filled with cotton.

Gréhant found that with the temperature of the room at 12° C. (53.6°F.), and the patient breathing seventeen times per minute, inspiring through the nose, that the temperature of the air expired through the mouth and apparatus was 35.3° C. (95.5° F.). If, instead of inspiring through the nose, the end of the tube within the mouth was closed with the tongue, and inspiration was performed through the mouth and expiration through the tube, then the temperature of the expired air was only 33.9° C. (93° F.). Although, as will be shown further on, these results are erroneous, the investigation goes to show that, even at this time, the importance of the nose as an organ of respiration was beginning to be recognized.

In a second series of experiments, Gréhant showed that the expired air was saturated with moisture at a temperature of 35° C. (95° F.) and not at 38° C. (100.4° F.) as Valentine had before stated. The error had been made on account of the momentary cooling of the surface of the hygrometer by the expired air: by correcting this error of experimentation, by enclosing the polished face of the hygrometer so that the expired air should not momentarily cool its face, the true result was obtained.

Subsequent to this we find such standard works on physiology as Dalton and Foster making no mention of the fact that the air is warmed and moistened within the nose and mouth before entering the lungs. Flint,[1] however, writes as follows: "The vapor in the expired air is derived from the entire surface which is traversed in respiration, and not exclusively from the air-cells. The air which passes into the lungs derives a certain amount of moisture from the mouth, nares and trachea. The great vascularity of the mucous membranes in these situations, as well as of the air-cells, and the great number of mucous glands which they contain, serve to keep the respiratory surfaces constantly moist. This is important, for only moist membranes allow the free passage of gases, which is, of course, essential to the process of respiration."

Rosenthal[2] claims that air is already warmed and saturated when it reaches the alveoli.

These functions, however, are attributed to the nose in a somewhat adventitious manner, and the general view seems still held that olfaction is the main function of the nasal mucous membrane. Even as late as 1878, we find Remy[3] alluding to the nose as the organ of olfaction, and directly stating that its other functions are purely secondary and adventitious. Remy first states that the watery secretion of the nose is for the purpose of moistening odorous particles, by which they are rendered sensible to the olfactory nerve. His exact language is as follows: "Cette membrane forme l'extrémité supérieure des canaux respiratoires mais, ce n'est jos là son principal but. Cette muqueuse fait partie constituante d' un organe des sens, et ce n' est qu' accessoirement qu' elle sert à un autre usage qu'a la function sensorielle."

[1] Einleitung in die Phys. und Path. des Mensch.

[2] Physiology, Edinburgh, 1829, Milligan's translation, 3d ed., p. 387.

[3] Physiologie de l'homme, Paris, 1829.

[4] Human Physiology, 5th ed., vol. ii, page 31.

[5] Physiologie des Athmens, Carlsruhe, 1845.

[6] Thèse de Paris, 1864, 161, Recherches Physiques sur la Respiration de l'homme.

[1] Text-book of Human Physiology, N. Y., 1876, p. 154.

[2] Handbuch der Physiologie von Hermann, 1880, iv., 2 S. p. 389.

[3] Thèse de Paris, 1878, la Membrane muqueuse des fosses nasales.

An additional function of the nose in phonation was first suggested by Helmholtz,[1] in his beautiful theory of overtones, and subsequently more specifically elaborated upon by Gordon Holmes in his admirable work on the voice.[2] That this conception of the physiology of the nose is an imperfect one and unsatisfactory, I think very emphatically impresses itself upon anyone who has made special study of these chambers in pathological as well as physiological conditions.

The nose undoubtedly possesses a threefold function, in olfaction, phonation and respiration. But that the function of olfaction is the prominent one, I think, is based on entirely incorrect views. The great and important function of the nose is as an organ of respiration, the other functions being entirely secondary.

As we know, the olfactory nerve is distributed in the mucous membrane lining these chambers, but this location is, to an extent, adventitious. Nature found the most convenient place for the distribution of this nerve at the entrance of the air-passages, where it should receive the first impact of odorous particles floating in the current of inspired air. These filaments of the olfactory nerve might have been located in the roof of the mouth, but we easily see how such a location would subject this delicate membrane to great injury on account of the other functions necessarily performed in this cavity. Hence we find the olfactory nerve distributed in the mucous membrane lining the upper and smaller portion of the nasal chambers, where it is thoroughly protected from injury, and deeply sequestrated and walled in, as it were, by its bony surroundings. The function of the nose in phonation needs no special reference. We all recognize the fact that a peculiar resonance and richness of tone of the human voice is largely dependent upon vibration of air in these chambers, as is demonstrated by the fact of this resonance disappearing when the nasal passages are occluded.

It is as a very important, perhaps the most important, and certainly the most intricate portion of the respiratory tract that the nose possesses the highest interest to us. That greater stress has not been laid on this function by writers and observers has always been something of a surprise to me, and yet a careful search of our literature fails to reveal any such recognition until within the last few years.

In a paper read before the American Climatological Association, May 28, 1885, on "Hay Fever, Asthma and Allied Affections,"[3] I first gave somewhat in detail certain views in regard to the respiratory function of the nasal chambers, which subjected me to considerable adverse criticism. All that I then stated I still adhere to, and believe the views there advocated to be entirely correct. The importance of this communication, I think, cannot be overestimated, and I therefore quote in full the views there laid down:

"The normal function of the mucous membrane is to secrete mucus, and only in such quantities as are sufficient to keep the membrane in a soft, moist and pliable condition. Any excess of this amount becomes a morbid secretion. Normally, nasal mucus is composed of 93 per cent. of water and 7 per cent. of solid matter. Robbed of a small portion of this water, it becomes thick, inspissated and unhealthy. Now, as we know, every breath of air that passes through the nasal chambers and reaches the passages below must become surcharged with moisture; otherwise it would rapidly exert a deleterious influence on the mucous membrane of the air-passages beyond in robbing them of their moisture, and so rendering their mucus thick and inspissated. It is estimated by physiologists that in the course of twenty-four hours about five thousand grains of water are taken up by the inspiratory current of air, in its passage through the respiratory apparatus. If, in other words, the humidity of the inspired air be compared with that of the expired air, it will be found that, in addition to the other changes as regards carbonic acid and oxygen, the inspired air will have gained five thousand grains of water. Now, I think I am safe in saying that, if five thousand grains of water were extracted from the mucous membrane of the bronchial tubes and air-cells in the course of twenty-four hours, the result would be complete destruction of their function, to such an abnormally dry condition would they be reduced; for, as we know, in each act of respiration the inspired air reaches only the larger bronchial tubes, and the source of moisture, therefore, of the inspiratory current cannot be from the smaller bronchial tubes or air-cells. We are, therefore, forced to the conclusion that this surplus of five thousand grains is taken up by the inspiratory current during its passage through the nasal chambers, and is still retained by it as it makes it way out through the air-passages, for the only source from which this amount of water could be taken up is the nasal mucous membrane. Certainly from no other mucous membrane of equal area in the body is it possible that such an amount of water could be secreted in twenty-four hours in health. Now, the mucous membrane of the air-passages is endowed with no especial apparatus for the secretion of water; the only secretory apparatus with which it is endowed is in the mucous glands, which secrete mucus alone.

"In the nasal mucous membrane, however, we find an apparatus capable of furnishing this water, and this is the so-called erectile tissue of the turbinated bodies. The necessity for some such apparatus I need not refer to, further than to say that it is absolutely necessary and essential, for the integrity of the lower air-passages, that the air which reaches them should be so far charged with moisture that they should not be robbed of any of their secretion. Especially is this true in a variable climate like ours, in which so great changes occur, characterized by excessive humidity or absolute dryness of the atmosphere.

"This, then, is the great and prominent function of the nasal chambers, so to prepare the ingoing current of air that it shall exercise no injurious influence on the mucous membrane of the passages below. It has always seemed to me that this great respiratory function of the nasal chambers has been to an extent overlooked in regarding the nose as an olfactory organ, for whereas impairment or loss of the sense of smell is but an incon-

[1] Die Lehre der Tonenfindungen als physiologische Grundlage für eine Theorie der Musik. [Ellis translation, p. 40.]

[2] Vocal Physiology and Hygiene. Gordon Holmes. London, 1879 p. 129.

[3] N. Y. Med. Journ., April 24 and May 1, 1886.

venience, and not dangerous to the health, the impairment of the respiratory function of the nasal cavities involves very serious danger. Thus the nose as a respiratory organ becomes infinitely more important to us than as an olfactory organ.

"As before stated, the nasal chambers contain no glands which secrete other than mucus. There are no serous glands. The mechanism, however, by which the water is poured out into the nasal chambers, and the ingoing current thus surcharged with moisture, is in this so-called erectile tissue. The watery constituents of the blood transude the mucous membrane, and appear on the tortuous surfaces and passages of the cavity. Now, unless the bloodvessels underlying a membrane called upon for this duty were very large and very numerous, they would be inadequate to supply this large demand. Nature, therefore, has furnished the membrane in this region with such an abundant supply of large, tortuous vessels that they assume the appearance of erectile tissue, and thus have given rise to this erroneous idea as to their function suggested by the name erectile tissue. Were the bloodvessels in this region of the same calibre and capacity as those of other portions of the air-tract, it is easy to understand how the extraction of so great a quantity of water would soon render the current sluggish by its greater consistence, and so completely arrest the function which they were designed to subserve. In addition to this large blood-supply there must be, of course, some delicate mechanism by which this function is regulated. This control is exercised by the vaso-motor system of nerves. So delicately must this be arranged that the transudation of serum must accurately adapt itself to every existing atmospheric condition. To-day, for instance, with air saturated with moisture, the turbinated vessels must be so far kept in control by the vaso-motor nerves that no serum escapes. To-morrow, again, with an almost absolutely dry atmosphere, under the action of the vaso-motor nerves, the blood control is unlocked, as it were; the turbinated vessels are so charged with blood that the current becomes active, and the amount of serum poured out on the mucous surface of the nasal cavity is such as thoroughly to saturate the ingoing current of air with moisture, and still not impair the consistence of the blood flowing through the vessels. This control must be so delicately exercised as to meet not only daily, but even momentary changes in the humidity of the inspired air. It is easy to see, therefore, how great the demand must be upon the vaso-motor nerves which regulate the calibre of these bloodvessels, how constant the watchfulness which controls this exosmotic action, and therefore how easily any impairment of this function might occur."

These views were based on the result of many years of clinical observation of this membrane both in health and disease.

From an anatomical point of view, it is difficult to understand why nature should have placed in these passages the somewhat intricate and complex mechanism which we there find, unless it was designed to subserve some important purpose. That this purpose is not connected with the function of phonation or olfaction I think cannot be questioned. We must then conclude that its design is connected with the function of respiration. I think we can more clearly reach a conclusion in the matter by a reference to the anatomy of this membrane.

In brief, we find the nose consisting of two wedge-shaped cavities, extending from the nostrils to the posterior nares, their inner wall consisting of the smooth face of the vomer and cartilages of the septum; their outer wall being formed by the superior maxillary, ethmoid and palate bones. Imposed upon this wall, we find the three so-called turbinated bones, scroll-shaped bones, which are designed to increase the surface over which the mucous membrane is distributed, dividing the cavity, as anatomists tell us, into three passages, which are mainly nicely drawn distinctions of an anatomical character. The floor is made up of the smooth surface of the palate and superior maxillary bones. These bony cavities are lined by a mucous membrane. Now, a mucous membrane is pretty much the same thing wherever you find it. It is simply a typical membrane, which is found lining all the cavities of the body which communicate with the external world. As a necessary part of the design of these cavities, their lining membranes must be soft, moist and pliable. In order that they shall possess these three properties, nature has embedded in their tissues certain glandular structures which secrete mucus. This mucus is to be regarded simply as a lubricant, and nothing more. No mucous membrane in the body is endowed with secreting structures more than sufficient to pour out on its surface just sufficient mucus to lubricate the membrane and keep it soft and pliable.

If there are any exceptions to this rule, they are merely such exceptions as are demanded by particular localities, as, for instance, in the vault of the pharynx and between the two pillars of the fauces we have large masses of glands which pour out an abundant supply of mucus, whose function is to lubricate the bolus of food, and facilitate its passage into the stomach. But aside from these rare exceptions, no mucous membrane is endowed with the power of secreting but a limited supply of mucus. Nor does nature ever call upon it to do more. We have here, then, in the nose, so far nothing which renders it capable of subserving any special function in the economy; simply a bony cavity lined with mucous membrane. In the upper part of this cavity we find distributed the nerve of olfaction. Here we find an additional function, which demands for its healthy action nothing further than a moist membrane, which will afford protection and distribution for the olfactory nerve.

In addition, however, to the parts already described, there are found *beneath* the surface of the mucous membrane, on the faces of the lower and middle turbinated bones, large plexuses of bloodvessels, the turbinated bodies, which have figured so extensively in our literature of the last fifteen years, and have been the subject of so much speculation and discussion. This mass of bloodvessels was recognized by anatomists in the last century, but in a vague and somewhat indefinite way.

According to John Mackenzie,[1] the spongy character of this tissue attracted attention as early as 1656, being mentioned by Rolfinc.[2]

Schneider[3] recognized it as containing vascular tufts, but did not recognize its cellular structure. This was first mentioned by Ruppert.[4]

Duverney[5] gives a more detailed description, and states that the membrane can be inflated by a blowpipe inserted into the veins.

The first to announce distinctly its true erectile nature was probably Cruveilhier,[6] who describes it as a very vascular and truly erectile tissue, and demonstrates its structure by the injection of mercury through the lymphatics.

The first careful anatomical investigation of this tissue was made by Kohlrausch,[7] who described what he supposed to be large venous sinuses existing in the deep layer of the membrane. Such a plexus had been previously referred to by Hyrtl, as acknowledged by Kohlrausch. It was subsequently claimed as an independent discovery by Kölliker.[8] In 1873, Bigelow[9] made some very careful observations of these structures, in which he demonstrated the existence of erectile tissue. It should be stated, however, that Kohlrausch[10] in his investigations had shown the existence of loops or helicine arteries, which at that time were recognized as an anatomical condition characteristic of erectile tissue. Kohlrausch's investigations were made in the moist tissue. Bigelow inflated the moist tissue with a blowpipe inserted into the veins themselves, as had been done already by Duverney.[11] and made his sections after the preparations had been allowed to dry. Bigelow's demonstration showed a very beautiful, spongy tissue. These observations were subsequently very nicely confirmed by Ischwald.[12] All these investigators asserted that this tissue was erectile tissue, their conclusions being based apparently on anatomical study alone.

Zuckerkandl,[13] however, whose classical work on the anatomy of the nose is the standard authority to-day on this subject, has made an exhaustive anatomical study of this membrane, in which he describes the mucous membrane covering the turbinated bones as consisting of connective tissue, the upper surface covered with flat epithelium, the deep layer forming the periosteum of the turbinated bones. Between these two layers we have abundant lymph tissue, and possibly lymph glands, although these have not been definitely made out. The tissue covering the turbinated bones is studded here and there with tubular mucous glands, many of which extend completely through to the periosteum. Within this lymphoid structure we have abundant venous plexuses, to which he gives the name "Schwellkörper" (swell bodies). About the venous plexuses the unstriped muscular fibre is abundantly distributed. The definite localization of the venous plexuses serves to distinguish this tissue from true erectile tissue, such as is found in the corpora cavernosa of the penis. The arterial supply is derived from the spheno-palatine artery. The capillaries are divided into three sets, one set being distributed to the periosteum, the second to the glands, the third to the surface. The capillaries distributed to the surface form loops which empty into veins, together with the superficial gland capillaries. The deeper gland capillaries and those distributed to the periosteum, pass into the veins, forming the so-called Schwellkörper, and the blood is then conveyed by venous channels in the periosteal surface of the membrane to five distinct plexuses, one going to the veins of the face, the second to the veins of the cranium, the third to the orbit, the fourth to the soft palate, and the fifth to the hard palate. These Schwellkörper are distributed, according to Bresgen.[1] quoting from Zuckerkandl's anatomy, as follows: One over the lower turbinated body, one along the border of the middle turbinated body, and one at the posterior extremity of each of the turbinated bodies.

We find, therefore, the nasal cavity containing this most intricate and delicate apparatus, which is designed to subserve the function of the already described serous exudation. The special method by which this serous transudation takes place we are scarcely ready to describe, though a very important suggestion comes to us from the notable observation of Chatellier.[2] He describes certain minute canals, running at right angles to the mucous membrane, penetrating to the lymph channels. Chatellier makes the suggestion that these canals serve the purpose of serous channels. The question arises, Whether Chatellier's canals may not be the tubular mucous glands of Zuckerkandl?

As before stated, when I first described this great respiratory function of the nasal mucous membrane, the observation met with considerable opposition

[1] Historical Notes on the Discovery of the Nasal Erectile Tissue. Boston Med. and Surg. Journal, Jan. 1. 1885.

[2] Dissertationes Anatomicæ Noribergæ, lib. ii. Cap. 20.

[3] De Catarrhis Wittburgæ, 1661-62, lib. v, passim.

[4] Diss. inaug. med. de tunica pituitaria, ejus anatomiam, physiologiam et pathologiam exponens, Vetero Pragæ, 1754, Para. i. p. 23.

[5] Œuvres Anatomiques, Paris, 1761, tome i. p. 222.

[6] Traité d'Anatomique descriptive, Paris, 1845, tome iv. p. 55.

[7] Müller's Archives, 1853, p. 149.

[8] Handbuch d. Gewebelehre des Menschen, Leipzig, 1867, p. 741.

[9] Boston Medical and Surgical Journal, April 29, 1875.

[10] Loc. cit.

[11] Loc. cit.

[12] Progrès Médicale, September 10, 1887.

[13] Wiener medizinische Wochenschrift, 1884, vol. 34. pp. 1121-1125. Schwellgewebe der Nasenschleimhaut und dessen Beziehungen zum Respirationspalt.

[1] Das Circulationsapparat in der Nasenschleimhaut, von klinischem Standpunkt betrachtet, Deut. med. Wochenschrift, Berlin, 1885, Nos. 34. 35.

[2] Annales des Mal. de l'Or., etc., No. 6, June, 1887.

and criticism.[1] Dr. Sherwell, of Brooklyn, took issue with my statements as something entirely novel, radical, and, as not having been based on physiological research and clinical observation. Sherwell cited cases of complete nasal stenosis, with habitual mouth breathing, in which the pathological lesions of the lower air-passages were not observed. This opens up rather a large question. The old physiological observation on the difference between the inspired and expired air, in which it is claimed the expired air gains a large amount of moisture in respiration, is, I believe, invariably made by the insertion of the tracheotomy tube in one of the lower animals.

Now, there is this to be said with regard to Sherwell's criticism: When any radical change is effected in the economy, by which extraordinary demands are made on an organ, that organ is generally found equal to the emergency. Probably there is no organ in the body which is not capable of doing twice the work which nature usually demands of it. If one kidney is extirpated, the other kidney is equal to the double duty, and so of other organs. When a tracheotomy tube is inserted, nature makes an effort to accomplish the normal respiratory process, and for a time succeeds. Air, containing a fixed amount of moisture, entering the lung through the tracheotomy tube, comes in contact with a cavity filled with air in a state of saturation. Necessarily, by an invariable law of nature, a portion of that moisture is taken up and conveyed to the outer world in the expired air, fulfilling the requirements of the old physiological experiment. But this process cannot go on indefinitely. The moisture of the expired air is acquired, evidently, by robbing the mucous membrane of the bronchial tubes, with the subsequent result of inspissated mucus, bronchial irritation and bronchitis. Sherwell was quite right in the assertion that my observations were based on no physiological experiments; no definite data were given. They were based entirely on clinical observation of the respiratory process, both in health and in disease, continued through a number of years. Since Sherwell's letter was published, however, I find my observations confirmed in a very striking manner by Aschenbrandt's[2] exhaustive experiments, in which data of a sufficiently definite character are given to establish all of my conclusions.

Aschenbrandt's experiments were conducted in the Physiological Institute of Professor Flick, of Wurzburg, and in the following manner: An air aspirator, with a capacity of five litres (five and a quarter quarts), is attached to one of the nostrils by means of a glass tube in which a thermometer is fixed in such a manner as to register the temperature of the air immediately upon its exit from the nose. One litre (quart) of air is passed every six seconds, each experiment being finished in thirty seconds. In a large number of experiments Aschenbrandt found, that with the temperature of the air in the room varying from 8° C. (46.4° F.) to 12° C. (53.6° F.), the temperature of the air as it passed from the nose did not vary from 30° C. (86° F.). Now the temperature of the expiratory current in ordinary respiration is 30° C. (86° F.), which shows conclusively that the warming of the air in respiration is done exclusively by the nose.

Experiments were also made as to the amount of moisture in the expired air, and were conducted with the same apparatus. He found that each five litres (five and a quarter quarts) of expired air contained 0.18 gram (2.77 gr.) of water, which constitutes complete saturation, and furthermore that the whole amount withdrawn from the body in twenty-four hours was 500 grams (7715 gr.), and that the source of this, therefore, was in the nose. A still further conclusion was drawn from these experiments, that all mechanical dust is completely arrested during inspiration, and is deposited on the moist surfaces of the nasal membrane.

Subsequent to Aschenbrandt's observations, Kayser[1] made a series of investigations in the same line. He made use of the same aspirating bottle as Aschenbrandt, and the thermometer tube fitted into the nostril is essentially the same. In Aschenbrandt's investigations, however, the upper pharynx was not shut off, and hence warm air could be drawn from the mouth out through the nose, by the aspirator, and thus vitiate the experiment. To obviate this source of errors in Kayser's experiments the palate is held up by a spatula, after the application of cocaine, and the upper pharynx and nose shut off completely from the lower pharynx and mouth. The temperature of the air after passing through both nostrils, five litres (five and a quarter quarts) in thirty seconds, was found to be the same as in Aschenbrandt's experiments, 30° C. (86° F.), when the temperature of the inspired air was 12° C. (53.6° F.); with external temperature of 0° C. (32° F.) to —4° C. (24.8° F.), the temperature of expired air was 27.5° C. (81.5° F.). If the inspired air was 19° (66.2° F.) to 20° (68.7° F.), the expired air was 32.3° (90.1° F.) to 33.5° (92.3° F.).

For testing the heating power of one nostril, instead of passing a tube through the mouth behind the palate, closing one nostril, and aspirating through the other as Aschenbrandt did, Kayser passes a caoutchouc tube through the inferior meatus of one side, the posterior end of this tube passing beyond the choana; the anterior end was fitted closely into the nostril by means of a rubber cork. The appar-

[1] The New York Medical Journal, May 22, 1886.

[2] Ueber die Bedeutung der Nase im Respiration, Th. Aschenbrandt, Wurzburg.

[1] Pflüger's Archives, vol. xli. pp. 127–47, 1887.

atus for aspiration and determining the temperature was then fitted to the other nostril. It is easy to see that by this means the heating effect of only one nasal cavity was obtained. The palate was held up as in the preceding experiment.

In this experiment, Kayser differs somewhat from Aschenbrandt, for while Aschenbrandt found that the air was heated just as much in passing through one nasal cavity as through both, Kayser found that it was heated about 0.5° (0.9° F.) less. Variations in external temperature made the same difference in the expired air as in the first experiment.

Kayser also performed a series of experiments for the purpose of finding how much the air was warmed in oral breathing. A caoutchouc tube was passed through the inferior meatus of one side to the choana, and the opposite nostril closed with the finger. The tube containing the thermometer was fitted into a cork, and held between the lips. The aspiration was then performed in the usual way. It was found that the air was heated almost half a degree less than in passing through both nostrils.

For determining the amount of moisture in the air after its passage through the nasal chambers or mouth, the thermometer tube was replaced by a U-tube containing pumice stone and sulphuric acid. The increase in weight of the tube at the end of each experiment enabled him to calculate the amount of water contained in the expired air. As a result of these experiments he found that in its passage through the nose or mouth the air was completely saturated with moisture.

The above experiments, as originally suggested by Aschenbrandt, were intended to approximate as nearly as possible the conditions of normal respiration, the tidal air being taken as five hundred cubic centimetres, and respiration rate as twenty. In thirty seconds, then, five litres (five and a quarter quarts) of the air would pass through the respiratory passages. Kayser points out that at least half the time is consumed by expiration and repose, and consequently in the experiment the air has been allowed to remain in the nose and mouth at least twice as long as it does in normal respiration. He, therefore, repeated all of the above experiments, regulating the aspirator so that five litres (five and a quarter quarts) would pass in fifteen seconds instead of thirty seconds. He found, however, that this increased rapidity did not notably influence the result, either with reference to temperature or saturation.

To simulate as nearly as possible the conditions found in the trachea and bronchi, Kayser made use of a glass tube of such a length and diameter that its area was about equal to that of the trachea and larger bronchi. This tube was lined with filter paper saturated with water. A thermometer was fixed in this tube so that its temperature could always be determined, and the temperature was kept constant by enclosing it in a hot-air bath. One end of the tube was left open, the other was connected with the tube containing a delicate thermometer, the same apparatus, in fact, used in the preceding experiments for determining the temperature of the expired air. Here he found that lowering the temperature of the air before aspiration made considerable difference in the temperature of the air after aspiration, and that doubling the rate of aspiration also exerted an influence upon the temperature and moisture of the air after aspiration.

For the filtering out of mechanical dust Kayser claims that Aschenbrandt's investigations are not conclusive, since with the apparatus with which the experiment was made very little dust could get into the nose at all. He consequently improved the apparatus, using a glass globe with three openings. One of these communicates with a bellows used to agitate finely powdered magnesia, the second is open to the air, the third is connected with a glass tube fitting tightly into one nostril. A similar tube connected with the aspirator is fitted to the other nostril. If now aspiration is conducted in the usual manner, and at the same time the dust is agitated by the bellows, Kayser finds that dust can still make its way around into the nostril connected with the aspirator, thus proving that the nose is not a perfect filter for mechanical dust.

Kayser makes the further observation, that when cold air is inspired through the nose, there is a notably increased blood supply in the turbinated bodies, thereby increasing their heating capacity. In this connection he suggests that in tracheotomy the inspired air in summer must be of a temperature of 30° (86° F.) to 35° C. (95° F.), and in winter of 25° (77° F.) to 28° C. (82.4 F.°), and in each case must be saturated with moisture in order not to produce bronchial irritation; the reason being that the bronchial membrane is not endowed with a special apparatus for moistening and heating the air.

It will be noticed that Kayser makes no definite statement as to the amount of moisture poured out by the venous sinuses of the nose in the twenty-four hours. Aschenbrandt, however, makes the statement that the whole quantity of water which the air in respiration draws from the human body amounts to about 500 grams (7715 grains) in the twenty-four hours, and this is taken from the mucous membrane of the nose. This observation, however, was scarcely necessary, when the amount given in my original paper as from twelve to sixteen ounces is the amount given by all physiologists as the amount taken from the lungs. Both Aschenbrandt and Kayser, however, make the definite statement that all the air which passes to the lungs through the nose is in a state of saturation. Of course, saturated air passing in and out of the lungs takes absolutely no moisture from the bronchial mucous membrane.

The proposition is proven beyond question, as previously stated by myself, that the sole source of moisture is in the nose. I think we may declare it as an established truth, that the function of the so-called erectile bodies is serous transudation, and that they are designed to subserve no other function in the economy.

The observers already quoted have made allusion to the fact already generally accepted by physiologists, that the air in passing through the nose is cleansed, in that floating particles of foreign matter lodge against the moist and tortuous surfaces. Probably, however, this is an adventitious function; certainly it is a very unimportant one. I have never regarded the bronchial mucous membrane as subject to any serious danger from floating particles of foreign matter making their entrance with the inspired air. In seeking for a proper function to assign to this falsely called erectile tissue of the nose, the assertion has been made, notably by John McKenzie, that they are designed to swell up and thereby close the nasal passages to prevent the entrance of foreign bodies. This observation, it has always seemed to me, was based on the original mistaken idea that the turbinated bodies are erectile tissue; and, therefore, their function is to become erect. I think it has been demonstrated that these bodies are not erectile tissue. Furthermore, they never become erect in health or disease. Certainly, if nature intended that they should swell out, and thereby occlude the nasal passages to prevent the entrance of foreign bodies, thereby compelling the opening of a far more vulnerable tract through the mouth, nature has been guilty of an awkwardness of design which presents no analogy in the whole human economy.

26 WEST FORTY-SIXTH STREET, NEW YORK.

SOME CONSIDERATIONS CONCERNING THE OPERATION OF VAGINAL HYSTERECTOMY FOR CARCINOMA, ESPECIALLY CERTAIN OBSCURE CONTRA-INDICATIONS.

BY ANDREW F. CURRIER, M.D.,
OF NEW YORK.

REPORT OF AUTOPSY SUBSEQUENT TO VAGINAL HYSTERECTOMY AND INFERENCES FROM THE FINDINGS.

BY WILLIAM H. PORTER, M.D.,
OF NEW YORK.

IT has usually been stated by those whose experience in vaginal hysterectomy has been extensive that, given a case in which the disease (carcinoma) is not so far advanced as to render hysterectomy impracticable, the principal contra-indications are a very small vagina or a very large uterus.

The ten years that have elapsed since this operation came into prominence have been very fruitful ones. Not only have they demonstrated its great advantage over the method by abdominal section, both in respect to the facility with which it can be performed and the less degree of risk as to the immediate results of the operation, but they have also shown that there is a possibility in a certain proportion of cases of removing all the diseased tissue.

Removing diseased tissue, however, is quite different from removing a tendency to disease, and herein doubtless lies the explanation of the early recurrence of carcinoma in many cases in which a most rigid examination of the amputated mass shows that the section has been made beyond the diseased and into the sound tissue. This applies alike to cancer of the uterus and cancer in any other part or organ, and this opinion gains weight from the statements of MacEwen at the discussion on cancer before the Glasgow Clinical and Pathological Society, in 1886 (see *Glasgow Medical Journal*, April to July, 1886). He had observed that in cases of cancer of the lip, in which the amputation was extended quite beyond the apparent limits of the disease, the epithelium of the apparently sound skin, contiguous to that which was evidently diseased, began to show signs of disturbance and irritation before proliferation or infiltration had occurred. It would seem as if there were a kind of epithelial infection, as Rindfleisch believed, though perhaps not in the sense in which he regarded it, which renders permanent recovery, even after the most carefully conducted operations for cancer, so delusive.

In uterine cancer especially one cannot be too confident that even the diseased tissue has all been removed, though the uterus may have been small and perfectly movable, and the history of the patient without especially damaging features. The case which is here recorded will sustain this statement, and, in view of the possibilities, suggests for each case a careful weighing of the argument of Martin and Schauta in favor of complete removal of the uterus, with that of Schröder and Hofmeier in favor of partial removal or palliation.

As to the technique of vaginal hysterectomy, it would seem that the methods of Martin, Leopold and Fritsch, and the recent suggestions of Richelot to secure the broad ligament with clamp forceps, thus saving the time and difficulty of ligating those structures, left little to be desired in this direction. There can be no question that the more rapidly the operation is performed, and the less the quantity of blood lost, the better will be the patient's chances of recovery. It is the rapid and skilful operating of those gynecologists, chiefly Germans, who have published tables of such brilliant successes, that has contributed mainly, in my opinion, to the results which they have had. If this is true, it follows that the operation is destined to be limited to men of exceptional ability as anatomists and surgeons. For such

it is, doubtless, an easy operation, but it can never be to those who are unfamiliar and unpractised in operations in a deep cavity like the vagina.

With regard to the element of time which may elapse between a vaginal hysterectomy and a possible recurrence of the disease, it does not seem to me that the question has been fairly argued by all the opponents of the operation. One point after another of their opposition has, however, been wrested from them. It was first the unusual difficulties of the operation that were urged against it, then the unwarrantable exposure to secondary hemorrhage and dangers of septic infection, and finally it was declared useless because the disease always recurred. If we allow this last charge to include abdominal hysterectomy as well as vaginal, at least one brilliant case can be cited to controvert it; a case which was operated upon ten years ago by Prof. W. H. Freund, and in which, at a recent date, there had been no recurrence. Such a case could fairly be considered cured. There is no doubt, in my mind, that the operation is in very many cases justifiable, and that it will continue to be so regarded if it can offer, as it certainly can, to the large majority of those who are considered proper subjects, immunity for one, two or three years. The constantly improving statistics teach very clearly that we may hope for something even better than this in the near future.

If this operation be compared with that of amputation of the breast for malignant disease, and scarcely any one will question the propriety of the latter, it will be found that the results are favorable to hysterectomy. Martin in his paper before the Ninth International Medical Congress (*loc. cit.*) stated that Küster had, in 1883, reported 778 cases of breast amputation with a mortality of 15.6 per cent., while his own table of 311 cases of vaginal hysterectomy, including the work of Fritsch, Leopold, Olshausen, Schröder, Staude and Martin to the end of 1886, showed a mortality of only 15.1. It will readily be admitted that too much stress should not be laid upon these statistics, for the gynecologists mentioned are among the best in the world, and their work in the field of hysterectomy is the very best that has been done, and merely represents the possibilities of the operation, not what is achieved by the average of those who practise it.

The question of recurrence should not have more influence than it does with those other forms of malignant tumors which deform and disfigure various parts of the body, but especially the head and face. There are few skilful surgeons who will decline to remove such, and yet they present all the objections which have been urged against vaginal hysterectomy. Whatever the skill of the operator, however, I believe there are more limitations to the operation than have generally been laid down. I would not take the extreme position of my friend, Dr. Reeves Jackson, and condemn the operation *in toto* (see discussion on A. Martin's paper on "Vaginal Hysterectomy," *Transactions of the Ninth International Medical Congress*, Section on Gynecology), nor do I think that for so grave an operation Martin's and Schröder's indications are broad enough, namely, that the uterus should be freely movable and sufficiently small, the vagina sufficiently capacious and the circum-uterine tissues without evidence of infiltration to the examining finger.

It is only repeating what has been said many times to state that the examining finger, no matter how well trained, is liable to be deceived in this matter. A case is recalled in which excellent diagnosticians recommended Freund's operation, but when the operation was performed the posterior wall of the bladder was found so infiltrated as to break down like wet paper. Lancereaux has stated that kidney disease always exists in cases of uterine cancer which have attained any extent, and in my own experience I do not remember to have seen a case of advanced uterine cancer in which *advanced* kidney disease did not coexist, as shown by autopsy. I am not aware that any one has yet ascertained the precise or proximate stage of cancer of the uterus when the kidneys become involved.

If we limit the field of the operation strictly to those cases in which it can be demonstrated that the uterus alone is involved, we may rest assured that it will be performed less frequently than it now is, for in the majority of cases the attention of the patient is not called to her condition until severe symptoms occur, and then lymphatic involvement has usually taken place to a greater or less extent. In the case which is here reported it was considered that the disease was limited to the uterus, but, as the pathologist's report shows, it had invaded one broad ligament and the contiguous pelvic lymphatics to a slight extent, but sufficient, no doubt, to have served as a focus for further infection. The contra-indications to which particular attention was to be called will be referred to in the following history, and in the accompanying paper of Dr. W. H. Porter.

The patient was kindly referred to me by Dr. C. E. Bruce. She was a native of France, fifty-four years of age, and ceased menstruating at the age of forty-eight. She had had two children and two miscarriages, at the fifth and sixth months respectively. All her labors had been accompanied by severe hemorrhage. Her last pregnancy was during her thirty-sixth year. A year before she came to me she began to suffer pain after coitus, and at such times there was also a slight serous or sero-sanguinolent discharge. At various intervals during this year there were also rather free hemorrhages. Within two weeks of my seeing her she began to have severe pain in the hypogastrium and frequent desire to urinate. Her bowels were constipated, and straining at stool excited bleeding. The uterus was small and

movable, the cervix being hard and contracted, and free hemorrhage was excited by very gentle manipulation, although the latter caused no pain. A sound could be passed only a very short distance into the uterine canal. The examinations were made in both the dorsal and the lateral positions, and it could not be ascertained that either the vagina or the circumuterine tissues were implicated. In fact, it seemed to be an entirely suitable case for hysterectomy. That operation was performed April 18, 1887, and while I doubt not that it would have proved sufficiently easy for a more experienced operator, it was for me exceedingly difficult, and of very long duration. There are certain delays in a first operation of this character which cannot be foreseen, and in view of such possible accidents as ligation of the ureters, rupture of the bladder and injury to the intestines, it is better to proceed slowly and avoid great risks.

The day following the operation the patient did fairly well, passing only four ounces of urine, however, which contained pus, blood, eight per cent. of albumin and granular casts.

On the second day the urine was more abundant and of better quality, but the stomach began to be rebellious, and the mind unsteady. The temperature did not exceed 100⅓° F., and the pulse was steady at about 100 and of fair quality.

The third night was a very restless one, and the patient was wildly maniacal. Thinking that the symptoms might be due to iodoform poisoning, the wound having been freely dressed with that substance, and the vagina packed with iodoform gauze, I removed the tampon, when the patient at once fell asleep. On awaking, the delirium and restlessness returned, the respiration being markedly irregular and varying between seven and fourteen per minute. The urine was drawn every eight hours, as much as four ounces being obtained at a time, and thus continued during the subsequent twenty-four hours. At 8 P. M., on the evening of the third day, the temperature was 102⅘° F., and the pulse 108 and of fair quality. The patient was quiet, but subsequently became delirious and remained so during the night.

Near the end of the fourth day heart failure came on, and death resulted on the fifth day.

It is not a pleasant duty to relate one's fatal cases, but it seemed proper in this instance, especially inasmuch as a careful autopsy was made, which resulted in the discovery of very interesting conditions. No metastases of the disease were found in the viscera, but the question is very pertinent whether, with such lesions as were present, aside from the cancerous disease, there would be very much hope of performing a successful operation. On the other hand, the lesions were obscure, and certainly were not suggested by the patient's history. Perhaps it is more accurate to say that they were overshadowed by her uterine disease. At all events, the case proves that in forecasting the probable result of an operation of this character, there is room and necessity for more thorough preliminary examinations than are usually made.

In this case the autopsy showed that the heart was not in condition for the strain which was required. Bramwell (*Diseases of the Heart*, Edinburgh, 1884, p. 649) simply records a matter of common clinical observation in stating that "persons whose hearts are fatty bear pain badly, and are unfavorable subjects for severe operations," and Da Costa (*Medical Diagnosis*, Philada., 1884, p. 408) observes that fatty degeneration of the heart is one of those disorders with the anatomical characters of which we are far better acquainted than with their clinical history; also, "there is as yet no sign discovered by which we can positively say that the dangerous disorganization of the muscular fibres of the heart is in progress." The condition of the liver in this case was also unfavorable for a successful issue. The coexistence of the fatty and cirrhotic conditions is interesting, and it is a wonder that the patient's general condition, prior to the operation, was so good with such a combination of lesions.

Dr. Porter considers that the kidney lesions in this case were the principal cause of death (see his subjoined paper), which lesions he thinks were developed subsequent to the operation. May it not be that the fatty and granular changes in the epithelium of the uriniferous tubules formed a portion of the process of fatty infiltration which involved the liver and heart. The weakened condition of the heart-muscle certainly militated seriously against the distributing power, favoring venous stasis; destruction of a large area of liver surface interfered seriously with the metabolic function of that organ, and the imperfect aëration of the blood and oxidation of its oxidizable elements which necessarily resulted, would seem to account for the toxæmia which was probably present as early as the second day, and, from the nature of the conditions, must necessarily become more and more intense.

Under these circumstances the increased labor which was required of the kidneys, which were already weakened by disease, or, at any rate were predisposed to it, could not fail to produce acute inflammatory symptoms, and yet their function was by no means destroyed, for until the last few hours of life they were secreting a not inconsiderable quantity of urine.

Under all these conditions, it cannot be considered strange that the operation resulted fatally. The lesions, in my opinion, were sufficient to contraindicate the operation; but whether one would be able to discover such lesions in any given case, even after the most careful physical and chemical examinations, is a matter which may be seriously doubted.

Necropsy twelve hours after death. Body abundantly supplied with adipose tissue. Rigor mortis marked.

Thoracic cavity. The pericardial sac contained

about one-half ounce of clear, straw-colored serous fluid.

The *heart* was slightly enlarged and infiltrated with fat. The muscular tissue was pale, soft and somewhat granular. The segments of the mitral and aortic valves were the seat of a moderate amount of fatty infiltration, but the valves were free and apparently competent.

The *aorta* was the seat of marked fatty infiltration and commencing atheroma.

The *lungs* were slightly bound to the chest wall, deeply pigmented, congested and œdematous.

Abdominal cavity. The spleen was slightly enlarged and softened. There was no evidence of any hemorrhage into the peritoneal cavity, nor about the stump left by the operation. Everything about the stump indicated the development of a favorable reparative process.

The *kidneys* were enlarged, pale in color and very soft. Their capsules were not thickened or adherent, and the underlying renal surface was perfectly smooth after enucleation. Both the cortical and medullary portions were enlarged and whitish in color. *Microscopic examination* showed the epithelial cells of the uriniferous tubules throughout the kidney to be very much swollen, and their protoplasm filled with minute granular and fatty particles common to a rapidly progressing granular and fatty metamorphosis of the kidneys. The intertubular tissue was swollen and œdematous, but there was no development of new interstitial tissue. A few hyaline, granular and fatty casts were found in the tubules of the Malpighian pyramids.

The few minims of urine removed from the bladder at the necropsy were loaded with albumin and casts.

The *liver* was in an advanced state of fatty infiltration, and there was a parenchymatous metamorphosis of the protoplasm of the hepatic cells, unaffected by the fatty change. There was also a slight amount of interlobular cirrhosis.

Death in this case was due to the rapidly developed parenchymatous metamorphosis of the kidneys which caused a uræmic toxæmia followed by cardiac paralysis.

A careful *macroscopic examination* of the stump of the operation showed that all the ligatures were in position, and had not slipped. A thorough *microscopic examination* of the tissues behind the stump revealed the fact that all the carcinomatous tissue had not been reached by the operation. Marked alveolar spaces irregularly packed with epithelial cells having no intercellular substance were found in the retro-peritoneal tissue. The lymph spaces were also distended and contained epithelial corpuscles, also indicating a general spread of the morbid process.

The results of the necropsy would indicate a successful operation, so far as the operative procedure was concerned, all the growth having been removed that could possibly be reached by the knife. The stump being perfectly secured by the ligatures, hemorrhage had been prevented. There was no evidence of peritonitis, and the stump indicated a favorable reparative process. The chief point of interest, however, was in the rapidly developed parenchymatous metamorphosis of the renal organs (for explanation of the manner in which this change is produced, see Porter *On Renal Diseases*, p. 77, New York, 1887).

It might be well to say, in addition, from a further study of the subject, that in all the fatal cases of a similar nature to this one reported by Dr. Currier, in every instance marked hepatic lesions were found at the necropsy. In those cases in which the urine was carefully analyzed prior to the operation, and found free from albumin and casts, the quantity was found to be diminished, the specific gravity high, the color very dark, the reaction strongly acid, and the microscope revealed an abundant deposit of uric acid, urates, oxalates, one or all combined. These, from a physiological standpoint, indicate a decided hepatic disturbance, either functional or organic in nature. In all the cases examined post-mortem there were found marked organic changes in the liver as well as in the kidneys.

From these positive clinical and pathological facts the following deductions have been established:

First. That with a scanty flow of urine, which is high colored, of a high specific gravity, strongly acid in reaction, and loaded with uric acid, urates or oxalates, one or more combined, even with the absence of albumin and casts from the urine, we may reasonably expect to find, upon post-mortem examination, marked organic changes in the liver and kidneys.

Second. That these cases bear prolonged etherization and surgical operations badly; that they are the cases most likely to develop acute parenchymatous metamorphosis of the kidneys; and that they frequently die from retained excrementitious products rather than from so-called septicæmia.

Third. That a superficial test for albumin and casts is not a sufficient guide to the advisability of operation and to the prognosis in every surgical procedure. But for accuracy a careful study must be made, as regards quantity, specific gravity, acidity and the microscopic crystalline deposits, otherwise, the hepatic lesions may be overlooked. These conclusions are the results of a careful study of a large number of this class of cases in which necropsies were made.

MEDICAL PROGRESS.

Pulsating Tumors of the Spleen.—Arterial changes sometimes assume a prominent *rôle* in cases of aortic insufficiency. To these abnormal manifestations in the vascular system belongs also the so-called pulsating tumor of the spleen, which occurs under peculiar conditions, and perhaps oftener than has hitherto been known. Gerhardt called attention to the manifestation six years ago, and Prior last year discussed the subject. This exhausts the

literature. Prior showed that Tulpius, already in 1652, had described the condition as *lien verberens;* since which there has been no other description of the phenomenon. DRASCHE (*Wiener medizin. Blätter*, 1888, No. 1) has carefully studied a case of pulsating tumor of the spleen, so that six cases are now recorded. Five (Gerhardt, Prior, Drasche) occurred in patients with aortic insufficiency, and one (Prior) in an individual with hypertrophy of the left ventricle, without valvular lesion. In all six at the time of the manifestation there was fever from concurrent typhus, intermittent, pneumonia and pericarditis. The abnormal blood pressure, in consequence of the hypertrophy of the left ventricle, and the febrile relaxation of the vessel walls, which together give rise to increased size of the spleen, are the two conditions which afford an explanation of the occurrence of such pulsating tumors. The more frequent occurrence of such tumors with aortic insufficiency is explained by the constantly accompanying and usually marked hypertrophy of the left ventricle; that it is immaterial whether the hypertrophy of the left ventricle is due to aortic insufficiency or is a result of a demand for increased work on the part of the heart is self-evident; it is only requisite (Prior) that the hypertrophied ventricle, notwithstanding the fever, act powerfully and energetically. Drasche's work confirms and strengthens the existing views on the subject.—*Centralbl. für klin. Medizin*, June 30, 1888.

Pomade Against Neuralgia.—

R.—Menthol . . . . . gr. xv.
Cocaine . . . . . gr. v.
Hydrate of chloral . . . . gr. iij.
Vaseline . . . . . ʒj.—M.

Atropine in Poisoning by Pilocarpine.—At a meeting of the Medical Section of the Association of Polish Naturalists, DR. BOLESLAW WICHERKIEWICZ (*Wiadomosi Lekarskie*, No 7, 1888) related the case of a woman, aged forty, in whom the hypodermatic injection of a sixth of a grain of pilocarpine was followed by profuse salivation and perspiration, by persistent nausea and vomiting, by incontinence of urine and feces, by extreme pallor of face, cyanosis of the lips, immobile contraction of the pupils and great acceleration of the pulse. Subsequently, there supervened frequent prolonged arrests of the pulse and spasms of the posterior cervical muscle, accompanied with rolling of the eyeballs upward and loss of consciousness. The administration of morphine, strong infusion of black coffee, alcohol and amyl nitrite failed to relieve the symptoms. The patient's condition growing more and more alarming, ten hours after the pilocarpine injection, one-fiftieth of a grain of atropine was injected hypodermatically. A striking general improvement took place almost immediately. In fifteen minutes her pulse became quite regular (eighty per minute), the pupils dilated, the respiration normal, sickness and spasms disappeared tracelessly. Two hours later the lady was found to be "quite free from symptoms and smiling."—*Provincial Med. Journ.*, July 2, 1888.

The Treatment of the Morphine Habit.—Most of the disturbances following the withdrawal of morphine appear to be due to inanition from impaired digestive activity, anorexia, vomiting, profuse diarrhœa and obstinate insomnia. If the digestive disorders are prevented or lessened, the danger of the withdrawal of the drug is removed. From personal observation, KACZOROWSKI (*Medycyna*, 1887, Nos. 28 and 29) recommends the following: After the sudden withdrawal of morphine, opium is to be administered: Tinct. opii, 20 parts; tinct. iodi, 2 parts; twenty drops to be taken every two hours, day and night. The opiate partially takes the place of the withdrawn morphine, and the iodine, as an antiferment, maintains the appetite and makes possible normal and efficient digestion; vomiting and diarrhœa are rare; the symptoms of deprivation are mild and harmless. The dose is gradually reduced to nothing, and the cure is soon complete. Confinement is not necessary, as the compulsory cure thus forcibly effected is not permanent. Constant observation is indispensable, but the psychical influence is not less important. Well-conducted hospitals are best adapted to carry out the treatment, especially in the hands of a patient and reliable female nurse. To prevent the diffusion of the morphine habit, it is necessary that physicians personally make any necessary hypodermatic injections, and that they abstain therefrom in their own persons.—*Centralbl. für klin. Medizin*, June 30, 1888.

The Treatment of Fissured Fractures of the Os Calcis.—GUSSENBAUER, before the Verein Deutcher Ærzte of Prague, stated that though fractures of the calcaneum from direct force, as from falls upon the heel or from heavy weights, are uncommon, fissured fractures are so rare that but few cases of the kind are recorded. They are especially interesting to the surgeon from the difficulty of a safe method of treatment.

In a recent case, the speaker adopted a new procedure, which, for simplicity and safety, deserves preference over other methods. A robust man, aged forty-nine, on January 12th, fell into an excavation three feet deep, throwing the right foot forward and landing on the point of the foot, and fractured the os calcis. As the attending physician could not effect replacement, the patient, on January 13th, came to the clinic. There was marked swelling in the region of the right astragalo-calcanean joint and of the lower third of the leg; strong plantar flexion was impossible; dorsal flexion painful; the tuberosity of the os calcis was raised two inches by the tendo Achillis, which separation was increased to three inches and a half on dorsal flexion. Reduction was attempted under chloroform anæsthesia. By maximum plantar flexion at the tibio-tarsal joint and flexion at the knee-joint, the dislocated tuberosity could be brought in partial apposition with the anterior fragment, but complete reduction was not possible. A retaining bandage was applied. Bony union was not looked for. Coaptation of the fragments would have been possible with Achillotenotomy, but the retention of the tuberosity in position could only have been accomplished with protracted immobilization of knee- and ankle-joints. Hereupon, Gussenbauer suggested the following expedient: The broken fragment of bone was drawn down by a Langenbeck bone hook fastened into the os calcis, by which means the fragments were accurately approximated. Then a triangular nail was drawn through the skin into the calcaneum, and such firm union of the fragments effected that the patient could make varied movements of the ankle-joint without the slightest displacement. An iodoform dressing was applied over the site of entrance of

the nail, and the foot placed upon a Petit splint. In fourteen days, the patient could move the foot without pain; in six weeks, there was complete consolidation of the fragments, and the nail was removed. The patient was discharged February 26th, without the slightest interference with function. He has since resumed his occupation of restaurateur.—*Wiener medizin. Presse*, July 1, 1888.

Antiseptic Ointments for Vaginal Touch or for Dressing Excoriations, Fissures, etc.—Demelin, in *Revue Générale et de Thérapeutique*, June 28, 1888, recommends the following:

℞—Vaseline	30 parts.
Boric acid finely pulverized	4 "
℞—Vaseline	120 parts.
Biniodide of mercury	1 part.
℞—Vaseline	30 parts.
Finely powdered iodoform or iodol or salol	4 "
℞—Vaseline	30 parts.
Creasote	1 part.
℞—Olive oil	100 parts.
Crystallized carbolic acid	10 "

The carbolized oil is advantageously employed in lymphangitis of the breast.

The Surgery of the Biliary Passages.—Courvoisier (*Korresp. Bl. für Schweizen Ärzte*, 1888, No. 3) formulates the following indications:

In case of hydrops or empyema of the gall-bladder, in consequence of occlusion of the cystic duct by a calculus, lithotripsy through the duct wall should first be attempted; this failing, cholecystotomy, with suture and depression of the gall-bladder, should be performed. If the cystic obstruction cannot be overcome, an artificial gall-bladder abdominal fistula is indicated; cholecystectomy might even be considered.

In case of complete and persistent occlusion of the choledoch duct with the consequences of biliary retention, when the obstructing agent is a stone, lithotripsy is to be attempted. If this fail, or if the obstruction depend upon cicatricial growth, an artificial gall-bladder intestinal fistula should be made.

Acute ulcerative perforation of the biliary passages by a calculus demands a laparotomy and search for the perforation. If the perforation is found in the cystic duct, ligature of the peripheral portion and extirpation of the gall-bladder are to be done; if in the choledoch duct, a ligature should be placed on either side of the perforation, and an artificial gall-bladder intestinal fistula made. A similar procedure is indicated in rupture of the biliary passages. Derangement of the biliary excretion by new growths calls for cholecysto-enterostomy.—*Centralblatt für Chirurgie*, June 30, 1888.

Injections of Ether in Cardiac Insufficiency.—Bamberger (*Wiener kl. Woch.*, No. 12) relates that in a case of fatty degeneration of the heart the hypodermatic injection of several syringefuls of ether overcame the extreme dyspnœa and the œdema, and caused a profuse secretion of urine. The writer believes that in this case the ether acted directly upon the renal secretory apparatus.—*Münchener medicin. Wochenschr.*, July 3, 1888.

The Etiology of Yellow Fever.—Dr. Paul Gibier, who was deputed by the French Government to investigate the whole question of yellow fever, has just delivered a lecture before the Academy of Sciences in Havana, embodying the results at which he has at present arrived. Before leaving Paris, he felt so convinced of the truth of Dr. Freire's views that he got himself inoculated with some of the cultures which that distinguished Brazilian physician had brought. The first insertion—made with a lancet with great care—was followed by no result whatever. A week later some of the attenuated virus was injected subcutaneously, and this produced such violent effects that Dr. Gibier declares nothing in the world would induce him to submit to a repetition of it

Since his arrival in Cuba, he has made post-mortem examinations of a number of persons who have died of yellow fever, some of the examinations taking place only two hours after death, and one of them within fifteen minutes from the moment life became extinct. The examination of the blood taken from the heart in these cases, as well as the inspection of the urine, the bile, the pericardial fluid, the liver, the spleen and the mesenteric glands convinced him that none of these organs contains any microbes. He, however, discovered in the black matter always found in the intestines a bacillus presenting many points of resemblance to the so-called comma-bacillus of cholera, being sometimes curved and occurring in some cultures in a spiral form, possessing also the property of liquefying gelatin. This bacillus, when cultivated in peptonized broth, blackened the sides of the tubes; and when a few drops of the culture were injected into the intestine of guinea-pigs it sometimes proved fatal, the intestinal contents then showing a great resemblance to those found in yellow fever patients. In dogs, the injection of a few drops into the small intestine rapidly produced violent effects—vomiting, diarrhœa and, the night following, pyrexia. Cultures of this bacillus had a smell resembling that of the black vomit. A moist heat of 140° F. destroyed the bacillus in a few minutes; desiccation also proved fatal to it in less than twenty-four hours.

This last observation led Dr. Gibier to suggest that if this bacillus was really the cause of yellow fever, the immunity of inland districts might thus be explained, the comparative dryness of the air destroying the virus. It developed extremely well in sea water charged with organic matter; living, too, for a long time side by side with the ordinary microbes of putrefaction, so long at least as the medium did not become acid, for even a very slight degree of acidity destroyed the organism in a few hours.

In confirmation of observations made in the laboratory, Dr. Gibier mentions that he has several times had an opportunity of demonstrating the same circumstance in the dead-house, the contents of the intestines, when they have become acid some hours after death, ceasing to show the presence of the bacillus.

Since writing on this subject previously, Dr. Gibier has had opportunities of examining the bodies of foreign sailors who have died in the civil hospitals of Havana, and he has been able to demonstrate the presence of the bacillus in those who had suffered from yellow fever and its absence in those who had died from other diseases.

His opinion is that yellow fever is due to the development of the microbe in the intestine, the affection being, therefore, essentially a local one.

As to treatment, in addition to tonics and stimulants when required and frictions for the renal complication, he advises that the main treatment should be directed to the intestine. Every morning a good purge should be given—the first day 1 to 1½ ounces of sulphate of soda; the second day, 1½ ounces of castor oil, and the third day 15 grains of calomel, the same series being repeated during the rest of the first week. If the medical man is only consulted on the fourth, fifth or sixth day, the stomach should be washed out previously to the administration of purgatives, the colon being subsequently irrigated with a special tube, in order to get away as large a quantity of the toxic matter as possible. A case is mentioned which was apparently hopeless, the patient being semi-comatose, in which an enema produced an extremely copious stool, followed by rapid improvement and ultimate recovery. In fact, Dr. Gibier would treat yellow fever as he would an infecting ulcer, "by washing and disinfection." He recommends in addition to hydrochloric acid lemonade, which is taken as a drink, three different mixtures, all to be taken together. 1. Perchloride of mercury, $\frac{5}{7}$ to 1 grain; brandy, 2 ounces; mucilage, 2 ounces; infusion of coffee, 5 ounces; the whole to be taken in numerous divided doses during the twenty-four hours. 2. Naphthalin, 7½ grains, made up into a paste; from five to ten times this quantity to be taken in the twenty-four hours. 3. Tannic acid, 7½ grains, made into a paste; to be taken from six to ten times in the twenty-four hours. A case is given in detail, in which this treatment immediately changed the aspect of an apparently very grave case, the patient making a good recovery.—*Lancet*, July 14, 1888.

Excision of a Large Portion of the Os Ilium.—GUSSENBAUER, before the Verein Deutscher Ærtze, in Prague, exhibited a woman, aged forty-six, in whose case a large portion of the right ilium had been removed on account of an enchondroma. Following an injury in the right iliac region, a swelling formed, which grew rapidly, was painful and impeded locomotion. When the patient was first seen, on February 20th, a nodular tumor of the size of an adult's head and of the consistency of cartilage was detected in the right half of the pelvis, occupying the right os ilium, and extending from the sacro-iliac synchondrosis deeply into the iliac fossa. On February 23d, the extirpation of the tumor and of the involved portion of the os ilium was performed. The large cavity made was drained. The wound healed kindly. The bandage produced compression of the ascending colon, in consequence of which, tenderness, hiccough and constipation arose, disappearing, however, after removing the cause.—*Wiener medizin. Presse*, July 1, 1888.

The Cardiac Insufficiency of Fatty Heart.—HÖGERSTEDT (*Petersburg med. Wochenschr.*, Nos. 47 and 48, 1887) states that in this there are two distinct therapeutical indications: 1. The treatment of the acute manifestations of cardiac failure; 2. To overcome the chronic insufficiency.

To meet the first of these, he advises the use of ether and alcohol. With the onset of the asthmatic paroxysm, he recommends an ice bag to the cardiac region, peripheral irritation by means of friction and hot applications to the extremities, a glass of wine and the subcutaneous injection of ether or whiskey. Should these measures fail, and danger of cardiac paralysis arise, then only should resort be had to digitalis. The author warns against the use of morphine and, especially, of opiates. Their usefulness is slight, and they may do harm by increasing the feebleness of the heart.

For the chronic insufficiency of the heart, the author recommends an absolute milk-diet. Such a diet is unfavorable to the formation of fat. It supplies the organism with sufficient for its needs, but with a deficiency of carbohydrates and fat. With a continued milk-diet the signs of chronic insufficiency, as far as possible, are made to disappear, and the force of the heart is increased. It is probable that the reduction of fat which affects the body also includes the heart.

In his case the author used with good results one drop of a one per cent. solution of nitroglycerin.—*Centralbl. für die gesammte Therap.*, July, 1888.

Sulphonal.—LEHMANN (*München. medizin. Wochenschr.*, July 10, 1888) relates the case of a patient with asthma and insomnia, in which, chloral and morphine failing, fifteen grains of sulphonal given at bedtime proved an excellent and agreeable hypnotic.

MARTIN (*Med. Neuigkeiten*, No. 29) recommends sulphonal for the night sweats of phthisis. Doses of seven and a half grains at bedtime prove serviceable and afford the patient a quiet and natural sleep of four to six hours.—*München. med. Woch.*, July 10, 1888.

Cold Air Inhalations in Phthisis.—As the bacillus tuberculosis is only developed at a temperature above 37.5°, WORMS, of Riga (*Petersb. med. Woch.*, No. 25), recommends inhalations of cold air in phthisis. The patient, protected from the wind, should deeply inhale the external air through the mouth during the greater part of the day; during the night, the room is to afford limited access of cold air. Loss of heat by the skin is to be prevented by warm clothing. At the same time abundant albuminous and oleaginous nutriment and some alcohol are to be given; physical exercise and pulmonary gymnastics are to be recommended. Unfortunately, there are no statistics to support the author's theory.—*Munchen. medizin. Wochenschr.*, July 18, 1888.

Staining of Bacilli in Tuberculosis.—Tubercle bacilli are readiest and best stained by Gabbett's method, as described by GÜNTHER in the *Wiener klin. Woch.*, No. 13.

I. The dry preparation is placed for two minutes in a solution of fifteen grains of fuchsin in three and a quarter ounces of a 5 per cent. solution of carbolic acid and two drachms and a half of absolute alcohol.

II. The preparation is then placed for one minute in a solution of thirty grains of methyl-blue in three and a quarter ounces of sulphuric acid. The preparation is next rinsed in water and examined in this medium; or, better, is treated with absolute alcohol and examined in Canada balsam. The bacilli are red, the field blue.—*München. medizin. Wochenschr.*, July 10, 1888.

For Metrorrhagia.—According to BAMBELON (*Pharmac. Centralhall*, No. 9), a decoction of one to two teaspoonfuls of Capsella Bursa Pastoris or Shepherd's purse is equally as efficient in metrorrhagia as ergotin.—*Deutsche medizin. Wochenschr.*, July 12, 1888.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to The Medical News will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's address, No. 1004 Walnut St., Philadelphia.

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Address, LEA BROTHERS & CO.,
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SATURDAY, AUGUST 4, 1888.

PERNICIOUS ANÆMIA.

That pernicious anæmia is one of the most obscure diseases is due not only to the short time it has been studied but, to a greater degree, to the variety of its symptoms. From the diversity of these in different cases, it is difficult to recognize the type, and until this is done, the question as to whether pernicious anæmia is really an independent disease or not must remain an open one. At present the mass of testimony, or, at least, of opinion, tends to the belief that it is an independent disease, but with a varying etiology; and as the latter factor is studied the disease can be divided into cases with and cases without a known cause. In time this will probably tend to lessen the number of cases described as essential anæmias.

Before that, much study must be devoted to single symptoms and defining their relation to the disease. The difficulty of such a study is illustrated by a recent paper by Trechsel, on the "Etiology of Progressive Pernicious Anæmia" (*Rev. med. de la Suisse Romande*, No. 6, 1888), which contains a very good account of the disease and the discussion of a case under the author's observation, which he considers as presenting symptoms of locomotor ataxy. The case was that of a young woman who became anæmic during pregnancy, was delivered normally and without much hemorrhage, but never recovered strength; her appetite was lost, vomiting occurred frequently and the patient so lost strength that she could not walk. The knee-jerk was diminished, as was the muscular sense and also, though to a less degree, the cutaneous sensibility. Toward the end, lightning pains came on. There was no autopsy.

In citing this case as one of tabes, Trechsel says that Lichtheim has reported two similar cases, in which degeneration of the posterior columns of the spinal cord was found, and he states his belief that there was a fatty degeneration of these columns similar to that found in other organs in pernicious anæmia. He admits, however, that Lichtheim did not pronounce upon that point; and it seems to us a mistake on his part that he did not follow that acute clinician's example; for there is evidently little ground, from the clinical history as detailed, to warrant the diagnosis of tabes. The knee-jerk was diminished, but not absent, and we learn nothing about the pupils, ataxia or Romberg's symptom. The hæmoglobinometer estimation is useless as bearing on the diagnosis of pernicious anæmia, a fact of which the writer appears to be ignorant, if we may judge from his remarks on the diagnosis. He says that the hæmoglobin "seems to be in proportion to the red corpuscles," a statement inconsistent with the facts, as the relative increase of hæmoglobin above the proportion of the corpuscles is one of the most marked characteristics of this form of anæmia. Thus it seems doubtful that Trechsel's case was really one of pernicious anæmia; so that our knowledge of the disease is no greater than before.

To return to tabes, even more marked cases than this have been reported, in which no lesion at all in the cord could be made out *post-mortem*. It is difficult to understand, too, how or why the cause of the fatty degeneration of the other organs, presumably anæmia, could produce such systemic degeneration as that characteristic of tabes.

LEAD ENCEPHALOPATHY.

The cerebral disturbances due to lead poisoning are among the rarest of all nervous diseases. Partly owing to the scant opportunities offered for making *post-mortem* examinations in such cases, but little is known of the anatomical changes underlying the morbid conditions. Lead is found in the nervous as in many other tissues; Kussmaul and Maier have described periarteritis in the cerebral cortex, and sclerosis of the sympathetic ganglia; the latter fact was already known to Tanquerel in 1842. In cases in which death has ensued during eclamptic seizures,

aside from hemorrhage in the pons in one case of Lemaire. nothing more was noted than anæmia and œdema. which, of course, are not peculiar to the disease. That the anatomical changes are not simple may be concluded from the variety of forms presented clinically. Our readers will no doubt recall the interesting paper by Dr. Stewart. in THE MEDICAL NEWS of last year, in which many of the cases presented eclamptic phenomena; and this is the commonest form of plumbic encephalopathy.

WICKHAM (*L'Union Médicale*, No. 80, 1888) has reported a case in which progressive paralysis was apparently initiated by lead poisoning. The patient was an artist in water-colors, thirty years of age. There was no syphilitic or alcoholic history, but he belonged to a neurotic family. His disease began in the spring of 1887, with disturbed intellection, irritability and trembling of the fingers. This increased so that at the end of the year he had to give up work. He was seen then by Dr. Wickham, cachectic and with the symptoms noted. and with a blue line on the gums. It appeared that he used white lead in his work, wetting the brush in his mouth and rubbing off the color with his fingers.

Gastro-intestinal symptoms soon followed, and later albuminuria. His mental condition became worse. Loss of memory was marked; he would spend hours arranging furniture in the dwelling; believed that he was about to invent a process for engraving that would make him wealthy; he had periods of "reasoning mania." His speech became stammering. At no time, however, was there lingual ataxia, trembling of the lips or pupillary disturbance. Incontinence of urine or feces and alteration of knee-jerk were also absent. He was studied by Charcot, who was struck by the difference between the man's general appearance and his writing. The latter was so perfectly characteristic of general paralysis that he made a diagnosis to that effect, with intercurrent lead poisoning. The treatment consisted in the use of sulphur baths, iodide of potassium and morphia. There was but little change until February, when improvement of the gastro-intestinal symptoms began, soon followed by improvement of the mental and nervous symptoms. In April the patient was declared well. He could write as in health, and both mind and body seemed perfectly normal.

If, as Wickham remarks, the diagnosis of Charcot be accepted, the patient must now be in a period of remission, but in such remissions there is rarely complete absence of psychical as well as physical symptoms, even for so short a time as that elapsing before the case was reported. If the diagnosis of general paralysis is rejected, it is difficult to doubt the existence of a saturnine pseudo-paralysis, a disease curable by eliminating the toxic substances. It is possible, also, that the case is one of lead poisoning in a neurotic, in which cerebral symptoms and tremor preceded colic, and in which acute mania supervened.

Whichever of these the case proves to be, it shows forcibly the difficulty of diagnosticating progressive paralysis, and more forciby still the necessity for a guarded prognosis, even when the diagnosis seems assured.

THE PREVENTION OF FOOD ADULTERATION.

THE administration of the laws of New Jersey to regulate the sale of oleomargarine and other imitations of dairy products and to prevent the adulteration of food and drugs has recently been entrusted to DR. WM. K. NEWTON, Dairy Commissioner of the State, in order to impart to it increased efficiency, and the result has justified the expectation. The report of the Commissioner for 1887 furnishes evidence of intelligent and energetic work, in detecting adulterations in articles of food, and in punishing the offenders. The enforcement of the law regulating the sale of oleomargarine and other imitations of dairy products has well nigh driven these articles out of the market. The act to prevent the adulteration and to regulate the sale of milk, passed several years ago, has been made operative in nearly all the cities and towns of the State, with the result of greatly improving the quality of this important article of food. The law relating to the adulteration of food and drugs, which up to the present time had been a dead letter, has been revived, and a large amount of labor has been expended in analyzing the more common articles. When these articles have been found adulterated, the dealers have been warned of the fact and served with a notice that a repetition of the offence would be followed by prosecution. New Jersey has thus placed herself in line with Massachusetts, New York and some other States. in making open and active warfare against the deceptive and fraudulent and, frequently, hurtful practice of adulteration.

These organized efforts at the suppression of an infamous practice are, as yet, in their infancy, but they have already accomplished excellent results, a

large part being due to the moral effect of organization under efficient laws. Other States will eventually establish a service of food inspection and analysis, when its necessity is better understood and its advantages are more thoroughly appreciated.

The adulteration of food may be harmless, in which case an imposition is practised upon the purchaser, who pays for what he does not want, besides obtaining an article deficient in nutritive value; but a more serious aspect of the subject is that in which hurtful or poisonous materials are added to food, as in the recent cases of poisoning from the admixture of chrome yellow in certain products of the bakehouse, which fact was accidentally discovered after fatal consequences had attended the use of the toxic agent. It is true that the law punishes the offender when serious effects are traced to his acts, but the aim of the law should be protective and preventive, as well as remedial, and by the authorization of well-known agencies it should discover and punish the offence of tampering with the food supplies of the people. The protection and preservation of the health and lives of the people belong to the highest duties of government, and unless this truth is realized by our legislators, and they use their opportunities for thus promoting the public good, they become, in a measure, morally responsible for the evils resulting from a tacit license to trade in fraudulent and injurious preparations of the commodities of life, and thus show themselves as grossly incapable of discharging the important duties entrusted to their care.

Dr. Koller, the discoverer of the anæsthetic properties of cocaine, has removed from Vienna to New York City.

Prof. Leidesdorf, Professor Extraordinary of Psychiatry at the University of Vienna, has resigned in consequence of ill health. He has been a teacher at the University of Vienna since 1857 and chief of the Insane Clinic since 1875.

A new kind of enterprise has been developed in New York City, in connection with the starting of a new evening newspaper, by the engagement of a physician residing in one of the poorer quarters of the city to treat sick children whose parents are unable to employ medical attendance. He is engaged for the summer months, when the mortality among infants is especially high, to visit the sick at their homes and also to write articles for the newspaper on the preservation of the health of children.

SOCIETY PROCEEDINGS.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-fourth Annual Meeting, held at New London, Conn., July 18 and 19, 1888.

Wednesday, July 18th.—Evening Session.

(Concluded from page 111)

Dr. William Oliver Moore, of New York, read a paper on

HYSTERICAL BLINDNESS IN THE MALE, WITH A REPORT OF THREE CASES.

Case I.—Male, æt. twenty-five, farmer. Family history good. During past two years, had suffered with nervous symptoms. Did not smoke or drink. In June, 1886, complained of failing vision in left eye. When seen, June 16, according to patient's statement, vision in left eye = 0; right eye normal. Ophthalmoscope showed fundus normal, except a slight notch of opaque nerve fibre near the papilla. Testing with prism and candle gave double vision, as did pressure on one eyeball. The patient was informed that treatment by electricity would cure him in a few days. A strong faradic current was applied, causing the patient to jump from his chair, exclaiming that there already was improvement. In ten days $V. = \frac{20}{XX}$. Emmetropic.

Case II.—Male, æt. twenty-two, student and farmer. Fine looking. History of insanity in the family. Eighteen months before coming under observation, atropia had been instilled by a physician to determine whether or not glasses were required. He thought from the effect of the atropine that he was going blind. He then put on smoked glasses, subsequently bandages and kept in a dark room. He would not open the lids and declared that he was blind. For ten months he kept in a dark room, with covering over the eyes. On examination, the lids were closed, but not by spasm; the cornea clear. V. = O. Ophthalmoscopic examination under ether, normal fundus. Hysterical blindness was diagnosticated and a favorable prognosis given. Canthoplasty was then performed. Recovering from the effects of the ether the patient opened his eyes and evidently saw clearly. He was told that the cause of the disease had been discovered and that he would be well in a few days. In two days he was walking around without glasses. Has remained well since.

Case III.—Boy, æt. eighteen. Developed blindness in right eye after a disappointment at school. Normal appearance of eyes. Tests with prisms and colored glasses showed that vision was present. Ether was administered and patient assured that he would be well, and under electricity recovery was rapid.

Dr. Charles A. Oliver, of Philadelphia, presented a

DESCRIPTION OF A SERIES OF TESTS FOR THE DETECTION AND DETERMINATION OF SUBNORMAL COLOR-PERCEPTION (COLOR-BLINDNESS) DESIGNED FOR USE IN RAILWAY SERVICE.

It is a well-known fact, both from theoretical and practical standpoints, that many "color-blinds," especially

those of medium grades, have the power, even by daylight, of differentiating slight variations of shade when placed at the ordinary distance (forty inches) for wool selection employed in the detection and determination of "color-blindness." The writer has been induced, in the hope of overcoming the dangers that might arise from this power, in such important departments as railway, marine and naval service, in which the safety of lives and the protection of property are oft-times solely dependent upon proper recognition of color at great distances, and frequently through the intervention of more or less translucent media, to combine two modifications of his method of color selection with a simplified plan of the former procedure, by which the candidate is placed in the actual position of after-work, and under exactly similar circumstances as during employment. The method is divided into three parts:

First. The selection and registry of a definite number of loose wools from twenty-three pure and confusion match skeins thrown upon a dead black surface at a distance of forty inches.

Second. The selection and registry of the same number of similar reflected colors under various intensities of diffuse daylight stimulus, placed at distances requisite for safety.

Third. The selection and registry of transmitted colors under various intensities of artificial light stimulus placed at distances requisite for safety.

In addition to the advantages shown to refer to this first test alone, the method has the following additional ones: 1. Much faster in time than any other method. 2. The selection of loose wools at a distance. 3. No necessity for an expert except in doubtful cases. 4. Employment of the same character of signals for testing as is used in daily routine. 5. Placing the eye during testing at a distance necessary for future safety. 6. Bringing the eye during testing directly before the true condition of weather experienced whilst it is upon duty. 7. Test and match colors all graduated in proportionate sizes.

Dr. Oliver also reported a

CASE OF EMBOLISM OF THE CENTRAL RETINAL ARTERY.

The patient, a young man, was seen October 5, 1887. Twenty-six hours previously, while slowly walking in the shade, he was suddenly seized with blindness in the left eye. There were no other symptoms, and there had been no previous illness. The right eye was normal. Ophthalmoscopic examination of left eye showed clear media, nerve substance of a gray tint and swelling of the retina. All the retinal vessels were reduced in size. The veins were somewhat contracted, especially toward the nerve entrance. The characteristic cherry spot in the macular region was distinct. There was a small hemorrhage on the disk. Careful physical examination failed to reveal any lesion in other parts of the body. The case was kept under observation for some time, but there was no return of vision, the patient remaining completely blind in the left eye.

Dr. H. D. Noyes remarked that the result of autopsies shows that the great majority of these cases are really due to thrombosis and not to embolism.

Adjourned until Thursday morning.

Thursday, July 19th.—Morning Session.

Dr. Samuel Theobald reported

A CASE OF DOUBLE CONGENITAL IRIDEREMIA

in a child whose mother exhibited a congenital coloboma of each iris.

James O., aged eighteen months, was seen December 9, 1887. His mother brought him on account of the red appearance which the pupils presented. Upon examination, besides a congenital squint of the left eye, complete absence of each iris was discovered. The lenses were clear and there seemed to be, at least in the right eye, fairly good vision. The interest of the case lies in the fact, accidentally discovered, that there existed in the mother a congenital coloboma of each iris. In her right eye the coloboma was large, its direction being directly upward; in the left eye it was somewhat smaller, and was in an upward and outward direction. In neither eye was the choroid involved in the congenital defect. The mother volunteered the statement that an older child had had a similar appearance of the eyes, so that it is probable that to this mother with congenital coloboma there was born not only one but two children with absence of the irides.

Dr. David Webster, of New York, thought that the direction of the coloboma in the mother's eye was unusual. He did not recall an instance in which the coloboma was upward. It is almost always downward.

Dr. Randall, having had occasion to look up the literature of this subject, said that there were a number of cases reported of coloboma inward or outward but not upward.

Dr. T. Y. Sutphen, of Newark, N. J., read a paper on

PUNCTURE OF THE RETINA FOR DETACHMENT.

The results of three operations were reported. A male, sixty-two years of age, sought treatment April 1, 1887, for a cloudy appearance before the right eye. This he had noticed only a few days. He was near-sighted, but had never used glasses. Examination, R. S. $= \frac{15}{C}$ raised to $\frac{15}{XX}$ by $-\frac{1}{16}+$; field of vision defective downward and toward the median line. Tension slightly diminished. L. S. $+\frac{15}{C}$, raised to $\frac{15}{XV}+$ by $-\frac{1}{16}$. Ophthalmoscope showed myopia with choroiditis in both eyes. In the right eye the retina was found detached in its upper and temporal portion. The patient refused to undergo vigorous treatment in bed. He was given iodide of potassium in gradually increasing doses, rest being enjoined.

Five months later the patient returned with commencing detachment in the upper and temporal portion of the left retina. He was then kept in bed for two weeks, with the eyes bandaged, while profuse diaphoresis was frequently induced, but without benefit. He was then sent to the country, the iodide being continued. By December 1st there was in the right eye only perception of light; in the left there was vision confined to the outer and lower field. On this date puncture of the retina from beneath the detachment was made. Thorough antisepsis was employed; cocaine was instilled, a sickle-shaped needle was thrust into the globe between the

insertion of the external and inferior recti muscles, on the equator and on a plane with the lens; it was pushed onward until it was thought that the retina had been pierced. It was then withdrawn with a sweeping motion, the object being to enlarge the opening in the retina. Atropine was instilled, the eyes bandaged and the patient ordered to keep quiet. The following day, the subretinal fluid had disappeared, field of vision was normal, a red reflex was obtained from the fundus in every direction and the patient could distinguish large objects. Bandage was reapplied. Two days later, patient could count fingers at twelve feet, the retina appeared in the normal position, but the vitreous was quite cloudy. The vision continued steadily to improve. December 10th, a similar operation was performed on the left eye. Two days later there was marked enlargement of the field of vision, but some detachment was still to be seen on the temporal side. December 16th, field of vision in both eyes normal. No detachment of retina in either. The patient remained in bed twenty-eight days. February 10th, detachment began to reappear in the left eye and by March 3d it was as great as before. Needling was again performed with the escape of very little subretinal fluid. March 5th, field again normal. April 1st, partial return of detachment in left eye. July 6th, seven months after first operation, S. R. $= \frac{15}{C}$, raised to $\frac{15}{XL}$ by $-\frac{1}{20}$, no return of detachment, field of vision normal, blindness for red. In the left eye, almost complete detachment of the retina

After referring to the history of the operation, the speaker said that the interesting facts were these: The apparently perfect safety of the operation under modern antisepsis; one success and two failures under exactly similar conditions, barring the escape of the fluid outward in the successful case; encouragement to try this operation in otherwise incurable cases; the absolute freedom from all reaction. The best results will probably follow when the operation follows closely upon the subsidence of the acute affection causing the detachment. The chances of success are increased by a free flow of fluid outward. It was suggested that a narrow Gräfe knife might be used after accurately measuring the depth of the detachment, provided the point be so directed that the wound in the retina shall be directly opposite the lateral puncture.

Dr. J. F. Noyes, of Detroit, had tried operative procedure in only one case. He drew off the fluid with a hypodermatic syringe. After drawing off the fluid the retina returned to its normal position, and the outline of a small tumor was discovered. The detachment soon returned; the ball was enucleated one year later.

Dr F. P. Capron, of Providence, reported

A CASE OF GLIOMA.

The patient was a child three and a half years of age. The growth was removed, but has since involved the submaxillary glands and the glands in the neighborhood of the ear. Photographs showing the appearances were presented.

Dr. D. B. St. John, of Hartford, asked whether aid in the diagnosis between glioma and other affections was afforded by attention to the state of the tension.

Dr. David Webster, of New York, had never been able to detect any increase of tension until the second or inflammatory stage had been reached. There is always increase of tension. In at least two cases he had diagnosticated glioma from the history, with the existence of increased tension, when no tumor could be discovered. There is now on record a case in which Dr. C. R. Agnew removed both eyes of a child, one year of age, for glioma. This was fifteen years ago and the individual is still living. In this case the diagnosis was verified by microscopical examination. In some cases in which the diagnosis was made, but enucleation refused, the patients are still alive and the disease has not progressed, retrograde metamorphosis having, it is said, taken place.

Dr. W. F. Norris believed that in true glioma retrogressive metamorphosis does not take place. Fatty degeneration may occur in parts of the growth, but he was not aware of a case in which the growth entirely disappeared. Such cases are, he thought, instances of mistaken diagnosis. The diagnosis is difficult unless the growth has reached such a size that the vessels may be seen in it.

Dr. Swan M. Burnett presented some

MODELS EXHIBITING REFRACTION BY CYLINDERS.

It was shown how the refraction and the facial line change with the variation in the strength of the lens and with the alteration of the angle of crossing of their axes. The models were made, at his suggestion, by Mr. C. F. Prentice, of New York. Diagrams were exhibited showing, by geometrical construction, how it was possible to tell the course of any given ray after its refraction by any two cylinders of differing power and at any angle of crossing of their axes. A formula applicable to any axis of crossed cylinders, calculated by Mr. Prentice, was also shown.

Dr. Edward Jackson then read a paper on

DESIGNATION OF PRISMS BY THEIR REFRACTIVE POWER.

The author pointed out the inconveniences and errors arising under the present method of designating the strength of prisms, and recommended their designation by their refractive power as much more accurate.

A committee consisting of Dr. H. D. Noyes, Dr. Edward Jackson and Dr. Swan M. Burnett was appointed to take the matter into consideration, and report at the next meeting.

Dr. David Webster then read a paper on

EXTRACTION OF A PARTIALLY ABSORBED CALCAREOUS LENS.

March 15, 1888, C. C., æt. twenty-three, consulted Dr. Agnew and the author at the Manhattan Eye and Ear Hospital. She had phthisis bulbi left, and in the right eye were the calcified remains of a mostly absorbed lens, with a discolored atrophic-looking iris attached to the membranous mass by numerous adhesions. Visual field good. V = fingers at two feet. The vision of the left eye had been lost through a blow with a whip at the age of two years. A catarrh developed in the right eye some time afterward. Seven years ago (1881), her sight having been lost four months, both eyes were several times operated on by a surgeon in another city. Violent inflammation followed one or more operations on each of the eyes. Eighteen months ago another needling was done by another surgeon, by which sight was somewhat improved. The atrophic eye of late has been painful and tender on pressure. March 16th, Dr. Agnew enucleated the atrophic eyeball. A calcified plate was found in the

choroid and a small calcareous lens. While the patient was still under ether, he performed an iridectomy on the right eye. April 27th, Dr. Webster divided, with Knapp's knife-needle, two or three of the adhesions which were on the stretch. At least one could be heard to snap when cut An attempt to penetrate the thinnest looking portion of the membranous mass failed. There was considerable effusion of blood, which was soon absorbed. May 14th, an attempt to remove the pupillary obstruction with a sharp hook failed. Very little reaction. June 6th, with a keratome bent on the flat, a wound, as for iridectomy, was made on the supero-nasal corneal border. The pupillary obstruction was drawn out and cut off close to the cornea. Not a drop of vitreous escaped. There was some pain in the eye for three or four hours, probably the reaction from cocaine. Four days later, pain again appeared and was relieved by iced cloths. June 18th, fundus normal, no floating bodies in the vitreous, but the remaining portion of the pupillary membrane, which, by the way, was very thick and so tough that the iris scissors would scarcely cut it, extended backward horizontally and flapped up and down with the movements of the eye. June 22d. $V = \frac{20}{XX}$ with $-\frac{1}{3\frac{1}{2}}$. Reads Jaeger No. 1, with $+\frac{1}{2\frac{1}{4}}$. June 26th, discharged, wearing the above lens.

DR. S. THEOBALD exhibited an

UNUSUALLY LONG CILIUM.

The hair was over an inch in length, and was removed from the eyelid of a young lady suffering with some conjunctival irritation; the other cilia were of the usual length.

OFFICERS FOR THE ENSUING YEAR

were elected as follows:

President.—Dr. Wm. F. Norris, of Philadelphia.

Vice-President.—Dr. Hasket Derby, of Boston.

Treasurer.—Dr. J. S. Prout, of Brooklyn.

Recording Secretary.—Dr. Samuel B. St. John, of Hartford.

It was decided to hold a special meeting for the consideration of scientific matters only, September 19, 1888, at the Arlington Hotel, Washington, D. C.

The regular annual meeting will be held on the third Wednesday in July at the Pequot House, New London, Connecticut. Adjourned.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, June 12, 1888.

C. B. NANCREDE, M.D., IN THE CHAIR.

DR. JOHN S. MILLER read the following paper:

A CONTRIBUTION TO THE STUDY OF BONE REPAIR.

The recent observations of Macewen[1] have done much to stimulate the study of bone repair and have not thrown a little light upon the function of the medullary cells in osteogenesis.

The resort to mechanical irritation of the medullary tissues as a means of accelerating bone repair is an old procedure. Nancrede[2] claims a priority in this for America. As far back as 1793, Eve[1] relates that the lay surgeons of the frontier were wont to make multiple perforations of the external table of the skull when necrosis followed the Indian mutilation of scalping; and twenty years ago Agnew resorted to the same procedure in a case of injury to the head. A fatal termination of the case, however, by encephalic complication, rendered the experiment incomplete. Reports of success by this procedure have been recently multiplied to an extent which will excuse us from repeating them in detail.

That furthermore, medullary proliferation is not only an element in osteogenesis, but is of itself sufficient to that end, without periosteal coöperation, is evidenced by the case of Macewen,[2] in which a considerable restoration of the humerus was secured "by bone-transplantation," after a suppurative inflammation had destroyed both the shaft and its periosteum. The date of this observation is 1878.

The patient was a boy, two years of age. A suppurative periostitis of the right humerus of nine weeks' duration had resulted in total necrosis of the entire diaphysis, and this latter had been removed, leaving a tube of granulation material lining the periosteum. This tube had been kept patent by suitable dressing, until the whole space had become filled with granulation tissue, and had finally become a mass of cicatricial tissue. No bone had grown from this periosteum, except from a small portion next the proximal epiphysis, where at the outset the periosteum had been found covered with plaques of adherent osseous tissue. In the remainder there had been no osseous deposit, the result being a flail-like arm, which the patient found so useless that the parents desired its removal.

Macewen determined, however, upon another procedure. An incision was made into the upper third of the arm, exposing the head of the bone, to which was found attached a spike-like process of cartilage. This was removed, leaving as remains of the diaphysis a portion of bone one and three-fourths inches in length. From this point a sulcus about two inches in length was made in a downward direction between the muscles. The former presence of bone was nowhere indicated, there was no vestige of periosteum, and the sole guide as to the correct position into which the graft was placed was an anatomical one. Two wedges of bone were then removed from the tibia of a patient aged six years, with anterior curves. The face of the osseous wedges consisted of the anterior portion of the tibia, along with its periosteum, the wedges gradually tapering toward the posterior portion of the tibia.

After removal they were cut into minute fragments with the chisel, quite irrespective of the periosteum. The larger number of the fragments had no periosteum adhering to them, having been taken from the interior of the bone.

They were then deposited in the muscular sulcus of the boy's arm, and the tissues drawn over them and carefully adjusted. The wound healed without pus production. Two months after, a portion of bone an inch in length and three-quarters of an inch in thickness was found firmly attached to the upper fragment of the humerus.

Two other wedges of bone, larger in size, were similarly dealt with and inserted two months subsequently to the first graft, and a third couple were placed in position five months after the first. These filled up the gap in the arm to the extent of four and one-quarter inches. The arm then measured six inches in length.

[1] Annals of Surgery, vol. vi. pp. 289 et seq., 389 et seq.

[2] Internat. Encycl. of Surg., by Ashhurst, vol. v. p. 8.

[1] Remarkable Cases of Surgery, p. 35. Philadelphia, 1857.

[2] Loc. cit., p. 301.

Soon the utility of the arm was greatly restored. Seven years afterward he was seen and examined. The shaft of the humerus was found to have increased in length by one and three-quarters inches, being then seven and three-quarters; and it had increased in circumference to a marked extent and assumed a somewhat irregular shape. The length of the sound arm had, however, considerably outstripped the length of the engrafted humerus. The boy could use the arm for many purposes—taking his food, adjusting his clothes and in many games.

Whether the introduction of proliferating medullary cells into ordinary connective tissue granulations may convert the whole into osseous tissue, or whether a few osteoblasts will, so to speak, leaven the whole mass, is a question involving grave doubt, but the affirmative would seem to receive some support from the case which Nancrede[1] relates in 1883. An extensive laceration had caused denudation and necrosis of the ulna in two-thirds of its extent. The process of repair had been delayed; the operator drilled numerous holes through the sequestrum into the medullary canal, and, to quote his own words, "in a few days granulations sprang up from the ulna and fused with the granulations of the soft parts, and, in course of time, the fragment was separated."

That the procedure in this case had the effect of stimulating osteogenesis from within we can readily believe; but concerning the fusion with granulation tissue without, a more accurate observation than is recorded by Nancrede is desired. Although by analogy we might conceive it possible, inasmuch as repair within the bone is by ossification of an embryonic tissue derived from the connective tissue around the bloodvessels of the medullary space. A similar case is reported by Macewen,[2] in which granulations appeared upon a surface of bone completely denuded of its periosteum and gradually spread until they became united with the granulation tissue at the periphery of the wound. Macewen, however, infers from this observation that "The periosteum covering a bone may be completely destroyed or permanently removed, yet the denuded bone may not only retain its vitality, but may throw out cells which will cover it and form a new periosteum."

The presence of these cells would seem to confirm Macewen's dictum that the periosteum has no part, whatever, in the regeneration of bone; but the following case demands a different hypothesis for its explanation:

D. M., aged fourteen years, suffered from an osteomyelitis of the right tibia, resulting in total necrosis of its diaphysis. A complete involucrum had formed around the sequestrum and afforded an unsteady support for the body weight. It was covered with the thickened periosteum. A number of fragments had been removed from time to time, and the parents had refused to entertain for him the proposal of amputation. The case, however, when it came into my hands, had from septic infection become so desperate that I was compelled to do something radical at once.

Exposing the shaft, or rather the involucrum, throughout its whole length, Dr. Miller made, with trephine and saw, a fenestrum large enough to permit the removal of the remaining sequestra and cleared out the whole canal. Both epiphyses were found carious upon their exposed surfaces and were scraped to the limit of safety. In a few days a superficial necrosis took place upon the inner surface of the tube.

Demarcation was, however, promptly effected by the free use of aluminium acetate—

R.—Pot. et alum. sulph. . . . 1 part.
Plumb. subacet. . . . 5 parts.
Aquæ bull. . . . 100 parts.—M.
Filtra.

and a layer of fine granulations became the field for any osteogenesis which we might hope to witness. During the long process of repair, with the carious epiphysis as a never-failing source of bacterial supply, it was no trifling task to keep this extensive opening dry and sterilized. Furthermore, frequent dressings caused great nervous prostration.

The requirements of the case were successfully met by a mixture of iodoform and starch, in proportions which varied with the changing conditions. The cavity of the wound was filled with this dry powder, and to the whole was applied a closed dressing of gutta-percha tissue. The purpose of the starch was to absorb the excess of moisture incident to a closed dressing, as well as to dilute the iodoform. As soon as the powder became saturated, it was removed by a stream of sterilized water, and the wound was filled and closed as before. The intervals of dressing were gradually increased from three to ten days. These details are given, because, without them or similar ones, we would wait in vain for the desired repair. In process of time the hollow of the involucrum became completely filled with granulation tissue, which continued to extend until it fused with the granulations from the soft parts, and, finally, the whole became covered with a new epithelium, which had gradually spread from the edges of the wound. The tissues now became denser and offered more and more support to the body weight, until, as may now be seen, the boy has acquired a very useful limb and can walk without discomfort.

We must, therefore, infer that a metamorphosis into bone has taken place, and as the original diaphysis with its medullary structure is gone, we can find no osteogenic agent in the result other than the periosteum.

We must draw a similar conclusion from the recent case reported by Ceci: The patient, a young man, developed an acute osteomyelitis of the left scapula five days after circumcision for inflamed phimosis. One month later, Ceci[1] extirpated the bone, making the usual L-flap. The periosteum was left intact as far as possible, and the arm was preserved. The patient recovered rapidly, and there was a subsequent regeneration of the bone.

The only possible explanation of this result is by the hypothesis of periosteal agency or coöperation.

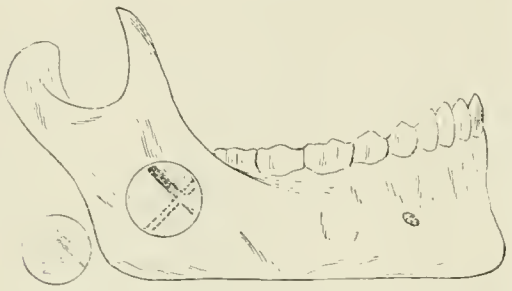
The following case is in confirmation of Macewen's proposition that "A portion of bone which has its continuity severed on all sides and has had all its periosteum removed is capable of living and growing." This is in contradiction of our inference in the case of the tibia and can be reconciled only by the assumption that the discovered laws of osteogenesis are of a lower order, subject to some general law of which we are as yet ignorant.

Mrs. L., aged forty-seven years, had suffered with a neuralgia of the maxillaris inferior, for the relief of which all medical means had been exhausted in vain, and

[1] Transactions of the Philadelphia Academy of Surgery, 1888.
[2] Loc. cit., p. 293.

[1] Centralbl. f. Chirurgie, Dec. 17, 1887.

which, therefore, left to Dr. Miller's option only the *dernier ressort* of neurectomy. The mode of operating was the usual one. The ramus was trephined near the angle of the jaw, the canal was exposed, and about two inches of the nerve trunk were drawn out and excised. The button was, however, returned after having been sterilized in a 1 to 1000 solution of corrosive sublimate, but it was not returned to its old position. With a view of imposing a barrier to the reproduction of the nerve, it was so rotated around its vertical axis that the groove upon its under surface stood at right angles to the axis of the canal. Not only did the wound close by first intention, but the button grew solidly in its position. Now, the curious thing in this case is, that before trephining he had carefully removed the periosteum, so that the latter can claim no part in the subsequent bone repair. After seven months there has been no return of the disease.



DR. JOHN B. ROBERTS said that it is a curious fact that the medical mind has not appreciated the possibility of bone production, despite the frequent instances that must always have come under notice. He was taught in cases of comminuted fracture, to take out the spicules of bone that were entirely separated from the larger fragments, lest they should necrose and give rise to trouble. Now it is the practice of the best surgeons to leave the spicules, and we find that often they do not die, and that they assist in the process of union and solidification. This experience is in the same line as the facts given by Dr. Miller in connection with his interesting case. If these spicules of bone can reunite, why not the button removed by trephining? Why is it not good practice to insert, when necessary, a portion of dog bone or chicken bone? as, indeed, has been done. We must not forget, however, the importance of asepsis, and that it is antiseptic surgery that has made these procedures possible.

In a case such as Dr. Miller reports, in which he rotated the button of bone, turning the groove in which the inferior dental nerve had run at right angles to its former direction, he should be inclined to go still further, and turn it upside down. The bottom of the pit in which it is to be placed, and the periosteal surface of the button being scraped, the ungrooved, freshened surface, formerly external, would then be placed inward, and a bony plug would be interposed between the divided ends of the nerve, probably preventing the reunion and the return of pain which so often occur.

The case of tibial resection was very interesting to him, as he had recently operated upon a similar one; the patient being, however, a woman of about fifty years, so that he cannot hope for as complete a closure of the cavity in the bone as in this growing child, exhibited by Dr. Miller. In that case, he removed the whole front of the tibia, going as near the articular cartilages above and below as he dared. The process of repair was like that we see in trees. We know that if a foreign body is inserted into a wound made in the trunk of a young tree, the process of cell growth will go on about it, and finally it will be completely covered in, and the presence be unsuspected, until, perhaps, the saw strikes it, as the tree is being converted into lumber.

DR. GEORGE E. STUBBS said that, in regard to operative treatment of neuralgia, we are entering upon a stage of work that will be much enlarged in the near future. He had a case recently in which neuralgia of the inferior dental nerve had existed for nearly seven years. He removed one and three-fourths inches of bone with the dental engine, took out as much of the nerve as he had access to and dressed and treated the wound antiseptically. The wound healed by first intention, and as yet there has been no return of pain; so that he considers he has obtained a very good result.

DR. NANCREDE said that the first question to be answered in a discussion of this kind is, What constitutes the periosteum? If we mean a fibrous membrane, the inner layer of which consists principally of yellow elastic tissue, then we must agree with Macewen's extreme views and admit that it has nothing to do with bone repair; but if we study the normal process of bone development, he, at least, must arrive at a different conclusion. The long bones are laid down in cartilage, a temporary structure. How do they ossify? By means of this very periosteum, which Macewen treats with such contempt, and which Ollier exalted too highly. There is a third layer of the periosteum in direct contact with the bone, and this layer is composed entirely of those elements which, wherever we see them, we recognize as the agents of ossification—the osteoblasts. The temporary cartilage is invaded by connective tissue ingrowths from the periosteum, covered with osteoblasts, and is eaten up by them; and we find it permeated and finally replaced by a network of fibrous tissue covered with osteoblasts. A certain number always remain beneath the periosteum. A certain number, very small, remain in the Haversian canals, a still larger number in the medulla.

It is clear to him why compact tissue dies; it has so few osteogenetic cells. The medullary tissue lives because it is comparatively rich in osteogenetic elements. Why does bone die when the periosteum is stripped off? Because the resulting inflammation is so severe that the inflammatory tissue strangulates the osteoblasts in the Haversian canals. With antiseptic means we now control the inflammation, and the osteoblasts are not killed, and the bone is saved.

We are very hard, nowadays, on the periosteum. The fibrous layer has nothing to do with bone repair, but its osteoblastic layer is in direct communication through the lining of the Haversian canals with the medulla; it is practically one structure; and thus, if we look at this matter from the standpoint of a correct histology, we find that both views are correct, provided only that we have a distinct understanding as to what is meant by the word periosteum in each case.

As to Dr. Miller's case, he cannot quite agree with him as to what formed the bone in the case of total excision of the diaphysis of the tibia. While the shaft was dying, new bone was formed by the deep layer of periosteum,

but after that the medullary spaces of the involucrum completed the bone.

He would also take exception to Dr. Roberts's proposition to scrape the button of bone and turn it inside out, in the case of trephining the jaw for neuralgia. By this process he would remove all the osteoblastic cells, and the compact tissue would have a very good chance of dying. One reason for failures in operations about the lower jaw is that it contains so little true medullary tissue, while, on the contrary, we can replace trephine buttons in the skull and have union, because the skull contains a large amount of such tissue.

The case of Dr. Agnew, referred to in the paper, occurred some twenty odd years ago. He saw the operation. The wound was completely covered by granulations. The fact that a denuded external table did not always necrose was known to Potts and to all the older as well as modern surgeons, and if Ollier had not led us astray by grafting, by insisting upon the periosteum being the sole osteogenetic agent, ignoring the fact that in removing it a layer of cells identical with those of the medulla are torn off, we would have arrived at a correct practice sooner; but surgeons went wrong by authority of Ollier, as they are now going wrong in the other direction by authority of Macewen.

In regard to the implantation of dead teeth, which Dr. Roberts referred to, the principle is probably the same as in the bony pegs formerly employed for ununited fractures. They are hollowed out by the granulation tissue, which develops into a fibrous or even osseous tissue and so holds the tooth in place by these newly formed digitations.

About twelve years ago he exhibited to this Society a case in which he resected four and a half inches of the humerus, and about two and a half inches were reproduced from the sawn end. This was without antisepsis. In the case referred to by Dr. Miller, in which he drilled the ulna, he was sure that the bone granulations fused with those of the soft parts for these reasons: the shell of bone when detached was not more than one-fourth the thickness drilled through, while the new bone was nearly as thick as the ulna of the other other side, as the cicatrix was not materially depressed. A recent experience, in a case of knee-joint excision, induced him to recommend that instead of wiring fragments of bone we nail them together, after having previously drilled or not, according to circumstances, allowing the heads of the nails to project through the skin. We thus save trouble and avoid damage in the removal.

Dr. Roberts said that Dr. Nancrede misunderstood him in regard to scraping away the cancellated tissue in reversing the plug in the case of trephining the lower jaw. He would scrape only what he calls the fibrous periosteum from the button, and from the bottom of the pit in the jaw he would take away the cancellated structure sufficiently to remove all trace of the nerve canal. The two raw surfaces would be placed together, and, by sinking of the button, would be a solid bony plug, interposed between the nerve ends.

Dr. Miller did not see any advantage in reversing the plug over rotating it. The groove being at right angles to the course of the nerve, the part in contact with the nerve is still solid bone, and the groove does not matter at all. In relation to the tibia case, the reason he emphasized the fact that the repair took place from the periosteum is because there was entire death of the old bone with the involocrum, and the periosteum did not die.

CORRESPONDENCE.

A VALUABLE REMEDY FOR CHRONIC DIARRHŒA.

To the Editor of The Medical News,

Sir: I think you would do a service if you would call attention in your journal to a valuable remedy for chronic diarrhœa.

Many years ago I suffered severely from that trouble; I considered it incurable. Being in Paris, one of the best physicians there assured me it could be cured by a diet of racahout, and it was.

Afterward here I found one could not get the acorn meal that forms the active part, but knowing that its usefulness must depend on the tannin it contains, I tried substituting it as follows:

Powdered chocolate, pure	½ lb.
Rice flour	½ "
Powdered sugar	½ "
Tannin	¼ oz. (120 grs.)

The tannin, or the rest, separately, have little effect. Together they restore the tone of the alimentary canal and nourish as well as cure.

One thing is *essential*, that is long cooking, not less than half an hour. If simply boiled a few minutes, the harsh taste of the tannin is very strong; with a good half hour's cooking, it disappears *wholly*—it is impossible to distinguish the medicine from ordinary broma. I think this has something to do with its curative powers and with the ease of digestion by the most irritable stomach. The remedy is too valuable not to be more widely known.

The amount to be taken is a teacupful morning and evening at meals.

Very truly yours,

M. C. L.

NEWS ITEMS.

The Harvard Medical School.—In addition to the existing requirements for the third-year degree, each candidate will be obliged to take examinations from a list of elective studies, to be chosen at the commencement of the year. He may choose to pass an examination ot two hours in either of the following subjects: dermatology, diseases of the nervous system, diseases of children or gynecology; or he may pass two examinations, of one hour each, in any two of the following subjects: ophthalmology, otology, mental diseases or legal medicine.

Dr. T. M. Rotch has been appointed Assistant Professor of Children's Diseases.—*Boston Med. and Surg. Journal*, July 26, 1888.

The Expenses of the International Medical Congresses.—Ewald, in the *Berlin. klin. Wochensch.*, July 9, 1888, in a brief historical sketch of the International Medical Congresses which have been held, prepared for the use of the Committee on the Organization of the Berlin Congress, concludes with the following statistics of the last four meetings:

Congress.	Members.	Printing, including Transactions.	Receipts from registration	Government appropriations	Private subscriptions.	Total cost of the Congress.	Cost per capita.
1879. Amsterdam	630	$1,875.00	$2,330.00	$1 040.00	$2,375.00	$5,775.00	$9.16
1881. London	3181	16,000.00	16,466.75	.....	28,620.00	43,695.00	13.73
1884. Copenhagen	1400	5,650.00	7,062.00	14,125.00	14,075.00	18,362.50	13.30
1887. Washington	2500	18,400.00	31,696.00	10,000.00	12,054.75	54,125.00	21.65

At London a guarantee fund of $5750 was raised, but not used.

These figures are not absolutely accurate, but they are approximately correct, and show how the expenses of the Congresses have grown, and they afford a basis of comparison for other meetings.

The Royal College of Physicians.—On the 27th of June, the President of the Royal College of Physicians, Sir Andrew Clark, received a large and distinguished company in the hall of the College. An interesting collection of works of art and curiosities was on view for the entertainment of visitors. Especially interesting to medical men, who, of course, formed the great majority of the gathering, was the diploma of Harvey, the discoverer of the theory of the circulation of the blood. It was from the University of Padua, and is dated April 25, 1602. There were also a manuscript book in the handwriting of Jenner, a number of relics of Dr. Priestley, many autographs of medical celebrities and some scientific exhibits. The band of the Royal Artillery, under the Cavaliere Zavertal, played a selection of popular music during the evening.—*Lancet*, July 7, 1888.

A New Breast Pump. — Auvard has invented a new breast pump, described by recent French journals, which consists of a glass bell fitting over the breast, from which a tube goes to the child's mouth, and a second and larger tube to the mouth of the mother. The mother aids the child by performing suction simultaneously with the child.

Berlin Druggists and Bogus Prescriptions.—It is said that a Berlin society sent out a long series of bogus prescriptions, containing, for example, "tuber cinereum," "urticaria rubra," "pemphigus foliaceus." These things were dispensed and paid for in over sixty Berlin drug stores.—*Brooklyn Med. Journal*, June, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 31 TO AUGUST 6, 1888.

MAGRUDER, D. L., *Surgeon* (U. S. Army).—Is granted one month's leave of absence, to take effect on or about August 13, 1888.—Par. 11, *S. O. 171, A. G. O.*, July 25, 1888.

WOLVERTON, WILLIAM D., *Major and Surgeon* (U. S. Army).—Is relieved from duty at Washington Barracks, District of Columbia, and ordered to duty at Fort D. A. Russell, Wyoming Territory.—Par. 13, *S. O 173, A. G. O.*, July 27, 1888.

GARDNER, WILLIAM H., *Major and Surgeon* (U. S. Army).—Is relieved from duty at Fort McHenry, Maryland, and ordered to duty at Washington Barracks, District of Columbia.—Par. 13, *S. O 173, A. G. O.*, July 27, 1888.

CALDWELL, DANIEL G., *Major and Surgeon* (U. S. Army).—Is relieved from duty at Fort D. A. Russell, Wyoming Territory, and ordered to duty at Jefferson Barracks, Missouri.—Par. 13, *S. O. 173, A. G. O.*, July 27, 1888.

WHITE, ROBERT H., *Surgeon* (U. S. Army).—Is relieved from duty with the Battalion of the First Infantry, at Santa Barbara, California, and will proceed to Angel Island, Cal., on public business, on the completion of which he will stand relieved from duty in this Department.—Par. 4, *S. O. 43, Headquarters Department of California*, July 17, 1888.

MUNN, CURTIS E., *Assistant Surgeon* (U. S. Army).—Will proceed to Santa Barbara, California, and report for duty to the commanding officer of the First Battalion of Infantry.—Par. 3, *S. O 43, Headquarters Department of California*, July 17, 1888.

BYRNE, CHARLES B., *Captain and Assistant Surgeon* (U. S. Army).—Is relieved from duty at Washington Barracks, District of Columbia, and ordered to duty at Fort McHenry, Maryland.—Par. 13, *S. O. 173, A. G. O.*, July 27, 1888.

COCHRAN, JOHN J., *Assistant Surgeon* (U. S. Army).—Will proceed to Benecia Barracks, California, on public duty, on completion of which he will return to these Headquarters.—Par. 1, *S. O. 44, Headquarters Department of California, San Francisco, Cal.*, July 20, 1888.

EWING, CHARLES B., *First Lieutenant and Assistant Surgeon* (U. S. Army).—Is relieved from duty at Fort Lewis, California, and ordered to duty at Washington Barracks, District of Columbia.—Par. 13, *S. O. 173, A. G. O.*, July 27, 1888.

JARVIS, N. S., *Assistant Surgeon* (U. S. Army).—Is granted one month's leave of absence on surgeon's certificate of disability, with permission to go beyond the limits of the Department.—Par. 1, *S. O. 90, Headquarters Department of the Missouri.*

JOHNSON, HENRY, *Captain and Medical Storekeeper* (U. S. Army).—Leave of absence granted for one month and fourteen days, from August 1, 1888.—*S. O. 170, Headquarters of the Army, A. G. O.*, July 24, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JULY 28, 1888.

PENROSE, THOMAS N., *Surgeon.*—Detached from the Navy Yard, Boston.

PARKER, J. B., *Surgeon.*—Ordered to the Navy Yard, Boston.

MCCORMICK, ALBERT MCD.—Commissioned Assistant Surgeon in the Navy.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JULY 28, 1888.

MURRAY, R. D., *Surgeon* —To proceed to Manatee, Florida, on special duty, July 21, 1888.

WASDIN, EUGENE, *Passed Assistant Surgeon.*—To proceed to Key West, Florida, for temporary duty, July 21, 1888.

FATTIC, J. B., *Assistant Surgeon.*—To proceed to Memphis, Tenn., for temporary duty, July 28, 1888.

WOODWARD, R. M., *Assistant Surgeon.*—When relieved, to proceed to Boston, Mass., for duty, July 24, 1888.

GOODWIN, H. T., *Assistant Surgeon.*—When relieved, to proceed to Cincinnati, Ohio, for duty, July 24, 1888.

GUITERAS, G. M., *Assistant Surgeon.*—Appointed an Assistant Surgeon July 23, 1888. Assigned to duty at the Marine Hospital, New Orleans, La., July 24, 1888.

HUSSEY, S. H., *Assistant Surgeon.*—Appointed an Assistant Surgeon July 23, 1888. Assigned to duty at the Marine Hospital, Baltimore, Maryland, July 24, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, AUGUST 11, 1888. NO. 6.

ORIGINAL LECTURES.

THE CEREBRAL PALSIES OF CHILDREN.

Clinical Lectures delivered at the Infirmary for Nervous Diseases.

BY WILLIAM OSLER, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA, PHYSICIAN TO THE PHILADELPHIA AND UNIVERSITY HOSPITALS AND TO THE INFIRMARY FOR NERVOUS DISEASES.

LECTURE V.

PATHOLOGY AND TREATMENT.

PATHOLOGY.—Varied as is the anatomical condition, the lesions have this in common—interference with the motor centres or with the conducting paths of the cerebrum. In reviewing a large number of post-mortem records, or in studying such a series of brains as that prepared by Dr. Wilmarth, at Elwyn, we are impressed, on the one hand, with the extent to which sclerotic and other changes may exist without symptoms if the motor areas are spared, and, on the other hand, with the degree of permanent disability which may exist with even slight affection of this region. Our knowledge is so limited to the appearances and states years after the onset of the symptoms, the final results of initial processes long past, that we are scarcely in a position to discuss accurately, in all its aspects, the pathology of this interesting group of cases. It is something, however, to get an outline for our ignorance and to ascertain in which direction facts are needed to sustain, or, it may be, to upset our theories.

A certain number of the cases of hemiplegia in children are due to *hemorrhage* from causes identical with those which prevail in the adult, and I have given illustrative instances of true apoplexy with laceration of the cerebral substance; but we may conclude safely, I think, that hemorrhage is not the common cause and accounts for a very small percentage. A small proportion of the cases of hemiplegia comes under the designation of birth palsies, as we have history of persistence of the paralysis from birth, and of the occurrence of difficult labor, often necessitating the application of forceps. In the cases of birth palsy which result usually in bilateral hemiplegia or paraplegia, the evidence points strongly to meningeal hemorrhage as one of the chief causes of the disorder. The great majority of these, as we have seen, present, at birth, one of two conditions, asphyxia or convulsions. The children are resuscitated only after prolonged attempts at artificial respiration; more commonly convulsions occur, either immediately after birth, or within the first ten days of life. Facts have been gradually accumulated to show that hemorrhage, usually meningeal, is a very frequent condition in children dying shortly after birth of asphyxia or convulsions, and as the birth palsies almost invariably have this history it seems reasonable to conclude that, in the cases which recover and subsequently present signs of motor disturbance, a similar, though less intense, lesion has existed.

Apoplexia neonatorum is by no means an uncommon event. Little fully understood its importance and quotes from Cruveilhier, Evory Kennedy, Hecker and Weber to show the occurrence of meningeal hemorrhage and capillary extravasations in newborn children. In 1880 Litzmann[1] communicated the results of the examination of 161 newborn children, in 81 of whom the spinal canal was exposed. There were 35 instances of meningeal hemorrhage, in 19 the extravasation being in considerable amount. The exudation existed in both cerebral and spinal meninges.

Parrot,[2] in 34 cases of cerebral hemorrhage in the newborn, found 5 in which the blood was in the cavity of the arachnoid and 26 in the subarachnoid space. In a large proportion of the cases the extravasation was bilateral. This author makes no allusion to the association of the lesion with abnormal labor.

Dr. Sarah J. McNutt has reported ten cases[3] and her paper is very convincing as to the frequent association of this condition with abnormal labor and with asphyxia and convulsions in the newborn. It may occur when the parturition has been normal, and may be deferred some days, or even weeks, as in the following case, which occurred in Dr. Parvin's Wards at the Philadelphia Hospital, and the specimens from which I saw with Dr. Stahl.

Child æt. six weeks, mother single; labor normal. Remained healthy until the forty-fifth day, when at 8 A. M., it had a convulsion, at first on the right side and finally general. Convulsions were repeated through the day and an ecchymotic rash appeared on trunk and extremities. Death at 10 P. M. The post-mortem showed extensive meningeal hemorrhage, a large clot over the cortex, particularly on the left side. There was much more blood in the left than in the right Sylvian fissure, and it extended under the frontal convolutions; it looked as if the bleeding had begun here, but the most careful examination of the vessels showed no changes in the arteries or thrombi in the veins. There were clots also in the posterior and middle fossæ, and a uniform sheeting of coagulated blood extended beneath the spinal dura.

I saw a second case, this winter, at the Philadelphia Hospital, and I am indebted to Dr. Hirst, who made the autopsy in both these cases, for the following notes: Case of twins; first child delivered with forceps—head presentation. The second child presented the breech, and there was great difficulty in the extraction of the head, required much force. Twenty minutes after birth, left lateral convulsions occurred and were repeated at intervals. The child lived forty-eight hours, having become intensely anæmic. The post-mortem showed

[1] Archiv f. Gynäkologie, Bd. xvi.

[2] Clinique des Nouveau-nés, Paris, 1877.

[3] American Journal of Obstetrics, 1885.

the viscera normal. The brain, in places, was remarkably soft, the tissue almost diffluent. A large clot existed beneath the dura mater on the right side, very thick over the cortex. It dipped into the fissures and sulci and extended down the cord. About the middle of the longitudinal sinus there was an irregular laceration, several lines in length.

The extravasation has in many cases been thickest over the motor areas, and from what we know of the changes which time may effect in effused clot, there is nothing inconsistent in the belief that sclerosis from compression or porencephalus from destruction might ultimately result. Gowers advocates this view in the case of the birth palsies, which, indeed, he considers in his work under the heading of "Infantile Meningeal Hemorrhage." Probably all the cases cannot be assigned to this cause, and I think, with Jacobi,[1] that certain of them may be due to fœtal meningo-encephalitis. Certainly in Ashby's case,[2] in which, in a child twenty-two months old, the cortex was smooth, without a trace of convolutions, the sclerosis must have begun during embryonic life.

The frequency of spinal hemorrhage renders it not improbable that some of the cases of spastic paraplegia may be due to this cause; and Ross suggests that as traction in feet presentation has been known to tear the cord, slighter degrees might injure the pyramidal tracts, and lead to a sclerosis.

We have then in the spastic diplegia, and in a few cases of hemiplegia—the true birth palsies—information which enables us to assign to hemorrhage an important *rôle*. More positive knowledge may ultimately be obtained by the dissection of cases at different ages after the onset.

When we turn to the cases of infantile hemiplegia, which come on during the first two or three years of life, we are met at once with conflicting theories. It is well to bear in mind that we are called upon to explain the mode of origin of sclerosis and porencephalus, the two conditions present in the great majority of the cases. A certain number of cases of infantile hemiplegia are due to hemorrhage, to embolism and aneurism, a few to tumor, as glioma or chronic tubercle; but, as we have seen, these form a fractional part. We require to know the pathological process lying at the basis of the convulsive attacks with coma, which come on suddenly, or after a slight febrile movement, frequently succeed an infectious disease, and leave a hemiplegia with too often its disastrous sequences—epilepsy and imbecility. In a large proportion of the cases the disease is such a clinical unit, with symptoms as marked and definite as those of infantile spinal paralysis, that we might expect a corresponding uniformity in the anatomical lesion. Unfortunately we are, so far as I can ascertain, entirely without information upon the state of the brains of children dying during or shortly after the attack; and the question resolves itself into an explanation of the conditions most commonly met with years after the onset, viz., sclerosis and porencephalus.

A few years ago Strümpell[3] suggested that the lesion was the cerebral counterpart of the infantile spinal palsy, a *poliencephalitis* of the motor areas of the cortex, analogous to the poliomyelitis of the anterior horns. The two affections are very similar in the mode of onset, in the age affected and in the liability to follow one of the infectious diseases. The more frequent occurrence of convulsions and the more prolonged coma might be expected from the seat of the disease. This very plausible and suggestive view has not met with much favor, not so much, I think, as it deserves. Against it has been urged the absence of anatomical facts, but this defect it shares with several theories. I see no improbability in the view; and it is possible that we shall have, ere long, the necessary anatomical facts to support it. The forms of encephalitis which we know: Virchow's encephalitis of the newborn; the miliary encephalitis due to septic causes, such as has been found in diphtheria and in aphthous stomatitis; and the steatosis of Parrot, arise under different circumstances, and do not present the symptoms of these cases of infantile hemiplegia. J. Lewis Smith has suggested[1] that certain of these cases of infantile hemiplegia are due to cortical encephalitis, set up by the poison of cerebro-spinal fever.

The frequency with which the disease is associated with or follows one of the infectious diseases is suggestive. Endocarditis is not rare in scarlet fever, measles and diphtheria, the affections which most commonly precede the hemiplegia, and embolism may account for a certain number of these cases. In diphtheria there may be plugging of the smaller cerebral arteries with micrococci, without the occurrence of endocarditis. There is another way in which the relation of the infectious diseases may be regarded. We know that in certain fevers, typhoid particularly, changes have been met with in the smaller arteries leading to anæmic necrosis in the corresponding districts. This has been worked out in the heart by Landouzy and Siredey,[2] and if it occurs in limited areas of this organ it might also take place in the brain. From what we know of sclerosis in other organs, notably the heart, the *rôle* played by the bloodvessels in the process is all important. Kundrat has already suggested that porencephalus results from an anæmia of definite areas corresponding to arterial distribution, but without arterial lesion. It is difficult to conceive of such a condition, but a widespread endarteritis, similar to, but more extensive than that which is known to induce anæmic necrosis of the heart-muscle might initiate a sclerosis; or, if the obstruction was suddenly effected, and large vessels involved, produce a rapid necrosis, the final changes of which would represent porencephalus. That this latter condition results from vascular obstruction we have evidence in the large defects which are occasionally found in brains of adults, and in the one organ there may be regions of softening in all stages of regressive change. Less abrupt processes in smaller vessels may account for certain of the cases of sclerosis, and the changes which Martin, Sabourin and other French writers have found in the smaller arteries in cirrhotic regions, make it by no means improbable that the cerebral counterpart has also a vascular origin.

Jendrássik and Marie[3] have described vascular lesions in cerebral sclerosis, which they believe to be primary.

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[1] Discussion at the Academy of Medicine, New York, January 25, 1888. N. Y. Med. Record, 1888, i.

[2] Loc. cit.

[3] Loc. cit.

[1] Medical Record, 1887.

[2] Revue de Médecine, 1885.

[3] Archiv de Physiologie, 1883.

The change is in the perivascular region, which is greatly increased in size and intersected by connective tissue growth, which is in intimate relation with the vessel wall and with the neuroglia. While regarding the periarteritis as the primary change in the cerebral paralysis of children, these authors do not exclude embolic and thrombotic processes in the smaller vessels. They refer also to the connection of these with infectious processes.

In a third way, too, an infectious disease might induce hemiplegia, by causing changes in the cerebral motor centres similar to those which occur in the disseminated myelitis following measles and scarlatina. We have not had until recently much positive knowledge of the latter, but such a condition as Barlow[1] has described in the cord shows the direct influence of the specific poisons on the elements of the gray matter. May not this occur in the motor cells of the cortex as well as those of cord? But here we return to Strümpell's view. The changes in the gray matter are, in most of these instances, necrotic, rather than inflammatory, and the vascular lesion is the primary one. In his researches in sclerosis Adamkiewicz[2] found the destruction of the nerve elements the first step in the process, to which the proliferation of the neuroglia was secondary.

In favor of the embolic theory it may be urged that the affected areas correspond with definite territories. Of porencephalus this is to a great extent true, but not always of sclerosis, which may be most irregularly distributed. I purposely noted, when discussing the morbid anatomy of sclerosis, the districts involved in the ten specimens in the Museum of the Elwyn Institution. The involvement of two or three regions, far apart from each other, the frequency with which the territory of the posterior cerebral artery is the seat of the sclerosis are against embolism as a cause.

Gowers has suggested that the lesion in these cases is, *thrombosis* of the surface *cerebral veins*, a well-recognized condition in children, which sets in with convulsions. Usually there is sinus thrombosis as well. Certainly, there are no veins in the body so favorably situated for the coagulation of blood; "they are roomy in proportion to the amount of blood they carry, they are tortuous and abundantly anastomosing, so that the current of blood is almost reversed at some points and can easily stagnate" (Edes).[3] Gowers quotes a case of Money's in which the thrombosis occurred after scarlet fever. Handford[4] has reported the case of a boy aged five years, in whom the cerebral veins were like whip cords, and there was hemorrhage on the surface of both hemispheres. There was also sinus thrombosis. The symptoms, however, were not those of infantile hemiplegia. Parrot[5] states that this condition is very common and in Plate IV. of his work there is a beautiful illustration of thrombosis of the surface veins with hemorrhage. The advantage of this view is that we are dealing with recognized lesions, of common occurrence in infancy, capable of explaining satisfactorily the symptoms; and yet the proof is lacking, the demonstration of its existence in one of these cases of infantile hemiplegia has still to be made.

[1] Medico-chirurgical Transactions, vol. lxx, 1887.

[2] Neurologisches Centralblatt, 1886.

[3] System of Medicine by American Authors, vol. v. p. 982. Phila., 1886.

[4] British Med. Journal, 1887, i. p. 1098. [5] Loc. cit.

To sum up: Infantile hemiplegia is probably the result of a variety of different processes, of which the most important are:

(1) Hemorrhage, occurring during violent convulsions or during a paroxysm of whooping-cough.[1]

(2) Post-febrile processes: (a) embolic; (b) endo- and peri-arterial changes; and (c) encephalitis.

(3) Thrombosis of the cerebral veins.

There are several problems of interest in connection with the pathology of infantile spastic paraplegia. Of special importance is the condition of the pyramidal tracts in the cord, and the attention of future observers should be directed to this point. In three cases of spastic diplegia and in the one case of spastic paraplegia there was descending degeneration. In Ross's case the cord was normal. In Ashby's case was the change in the pyramidal tract truly a degeneration, or was it not rather arrest of development? Most probably the latter, in connection with a brain the cortex of which was smooth and presented no trace of convolutions. In Ross's case though the cord was said to be normal, yet the anterior pyramids were not more than half the normal size, and the lateral columns were smaller. Alexandra Steinlechner[2] has reported the case of a lad, named Post, æt. six years, helpless from birth. The legs were in equinovarus position, but as there was no note of the condition of the arms, I did not know in which category to place the case; it was probably one of spastic diplegia. Post-mortem, bilateral porencephalus was found; the lateral tracts were undeveloped and did not contain more than one half the normal number of nerve fibres. Hervouet[3] has recorded the case of an idiotic child, æt. three and a half years, without spasms or contractures, in which there was a condition of microcephalus with complete absence of development of the pyramidal tracts in the cord. The motor strands in the cord do not attain their full development until after birth, according to Hervouet not until the third or fourth year. It is a question of no little interest to determine the exact condition of these tracts in cases of diplegia and paraplegia of children. Sharkey[4] states that in cases of congenital absence of the whole or part of the motor centres of the brain, which are accompanied by contracture, the pyramidal tract has proved to be deficient. And yet in Hervouet's cases these strands were undeveloped without any spasm of the muscles. It would really appear then that actual sclerosis of the lateral tracts is not an essential condition of spastic rigidity though present in a great majority of the cases. In the adult in the cases of Schultz,[5] Strümpell[6] and Anna Klumpke,[7] the pyramidal tracts have been found normal in spastic paralysis, and Blocq[8] in his recent monograph acknowledges that contractures may exist without affection of these parts. The problem of rigidity is by no means an easy one to solve. The over-action of the spinal centres seems the most reasonable view, at

[1] Dr. Samuel West reported a case of this kind to the Clinical Society of London last year. Medical Press and Circular, 1887.

[2] Archiv für Psychiatrie, Bd. xvii.

[3] Archives de Physiologie, 3 Series, tome iv, 1884.

[4] Loc. cit., p. 11. [5] Deutsches Archiv f. klin. Med., Bd. xxii.

[6] Archiv f. Psychiatrie, Bd. x.

[7] Dictionnaire Encyclopédique, Art. Tabes Spasmodique. Raymond, 1885.

[8] Les Contractures. Paris, 1888.

one time conditioned by the suppression of the function of the pyramidal tracts, the absence of inhibition, the "let go" theory of Hughlings Jackson, at another possibly excited reflexly, even when the motor strands in cords are intact.

We shall need in future autopsies on cases of spastic paraplegia in children specific details as to the condition of the lateral tracts, and particularly as to degeneration or absence of development. The two conditions might readily be confounded as can be gathered from an examination of the plate which illustrates Hervouet's paper.

Treatment.—In the majority of the cases the physician is called at the onset to treat an attack of convulsions or of coma, developing suddenly or after a few days' indisposition, or following, perhaps, one of the fevers. The paralysis is not apparent until the active symptoms have subsided, though if the convulsions are severe and unilateral it may be anticipated. These symptoms demand the bromides with chloral, a calomel purge, cold to the head, and, if necessary, leeches. The cases resemble so closely the ordinary convulsions of infancy associated with teething that the development of so serious a condition as hemiplegia is a great shock to the parents, who are very apt to blame the physician for having done too much or too little. In such an accident following vaccination the doctor is fortunate indeed if he escape unjust criticism. In the birth palsies, unless there are marks of the forceps, the condition of the limbs of the child does not attract attention, and it may be weeks or months before the disability is discovered.

The traumatic cases, such as the three reported, suggest surgical interference, two of them at any rate, as they were doubtless due to hemorrhage; but it is well to remember, in these days of safe surgery, that in children traumatic hemiplegia may sometimes disappear completely in a few days. I reported an instance some years ago[1] of a child, æt. twenty-three months, who had fallen from a balcony, and was admitted to my wards with a large hæmatoma of the scalp, left hemiplegia and coma. The symptoms gradually disappeared and the child made a complete recovery. A case was narrated to me by Dr. Murray Cheston of a child who was tripped by his brother and fell on his head. No external wound and no fracture. Hemiplegia developed, but in a few days disappeared completely and the boy is now quite well.

When the paralysis is established medicines are rarely called for, and the indications are to favor the natural tendency of the hemiplegia to improve and to lessen the rigidity and contractures, and, if necessary, overcome them by mechanical or surgical measures.

While it is impossible to predict, in any given case, to what extent the original palsy will disappear, we can usually expect a return of power in the leg and face, incomplete in the former, often perfect in the latter. In rare instances, two only in the series of one hundred and twenty cases, did the paralysis entirely disappear. The residual palsy is most marked in the upper extremity, and even when the arm is tolerably useful the fingers do not regain the power of delicate movements. Temporary arrest of growth and some degree of atrophy follow invariably, but as the child grows up we rarely see the great discrepancy in size of members which is common after the spinal infantile palsy. To maintain the nutrition of the paralyzed parts we employ warmth, massage and electricity. The temperature of the affected members is usually lowered and the circulation sluggish, so that the limbs should at first be wrapped in cotton-wool, and when the patient begins to make efforts at walking, flannel underclothing should be used. Attention to this apparently minor point should be impressed upon the mothers; it is too often neglected. Massage of the paralyzed muscles should be practised daily. Simple directions should be given to the mother or nurse, in the absence of a professional rubber. The chief point is to manipulate the muscles thoroughly, and I usually order the rubbing to be done with sweet oil, morning and evening for twenty or thirty minutes. I have strong belief in the efficacy of this treatment in keeping up the nutrition of the enfeebled muscles. To be of any service the applications must be continued for months.

Electricity is probably of no service in the original lesion, which may be left to nature, undisturbed by galvanism, which has been recommended by some authors. Of positive benefit is faradization of the paralyzed muscles, which must, however, be carried out persistently for months. Next to the rubbing, it is the most important agent upon which we rely to prevent atrophy and maintain the nutrition of the parts. It is not often that we find hospital patients able to spare the time for the prolonged treatment needed in these cases. Fortunately, the wasting is not extreme, and even without the treatment the leg and face recover more or less completely.

A considerable number of the cases come under observation when there are marked rigidity and contractures. For this condition in the palsied arm of hemiplegia not much can be done, but in the cases of spastic diplegia and paraplegia manipulations and surgical measures will often enable a crippled patient to walk. Persistent massage with strong flexion and extension of the limbs, as recommended by Dr. Weir Mitchell, is of great service. Case IX. of the spastic paraplegia cases could not walk when brought to the Infirmary, and after about a year's persistent treatment, frictions with oil and forcible flexion and extension, she can now get about the house quite well. Sooner or later the majority of these cases come under the care of the orthopedic surgeons who were dealing with this condition—and some indeed, as Heine, knew upon what it really depended several decades before physicians had recognized that it was primarily an affection of the nervous system. The wood-cuts and plates given in the works of Heine, Little and Adams show how well they dealt with these cases, and we have many illustrations at the clinics of my colleagues, Drs. Morton, Hunt and Goodman, of the good results of division of tendons and of the application of proper apparatus.

There are one or two special symptoms calling for comment. The aphasia, as we have seen, usually disappears, but it may be helped by systematic education, and these cases do better and recover more promptly than aphasia in the adult.

Epilepsy is a distressing symptom for which many of the cases seek relief. It is well to recognize clearly the cortical nature of the attacks, and let the parents know that a cure can rarely be anticipated. It is encouraging, however, to note that the seizures may lessen greatly,

[1] Canada Medical and Surgical Journal, vol. viii.

and prolonged periods of quiescence are not uncommon. The attacks of hemi-epilepsy without loss of consciousness may persist for years before a general convulsion with loss of consciousness occurs. In some instances the attacks are repeated with extraordinary frequency, twenty or more daily. In the transient attacks of *petit mal* the bromides do good; but, as a rule, in the true Jacksonian fits, unless there is much irritability and excitement, I have not found them very beneficial.

An important question of practical moment has arisen in connection with the propriety of surgical interference in these cases. Jacksonian epilepsy has now its surgical aspects, and there have already been several successful cases of removal of tumors from the motor areas of the cortex. Infantile hemiplegia offers some of the most typical instances of cortical epilepsy, and it may be well to consider how far it is likely that surgical interference can here be successful. As we have seen, in the review of the morbid anatomy, the conditions to be dealt with are (1) apoplectic, embolic or thrombotic foci, which are as frequently in the territory of the central as of the cortical arteries; (2) sclerosis; and (3) porencephalus. I do not think that, in any of the cases which I have reviewed, the anatomical condition offered the slightest possibility of relief from surgical interference. I except the case of glioma of the paracentral lobule to which I referred. This girl had had Jacksonian epilepsy for many years and the tumor could have been readily removed. In the second autopsy of the Elwyn cases, in which there were blocks of sclerosis, the mass causing the hemiplegia might have been removed, but there were several other areas. There have been two cases of operation in the cortical epilepsy of infantile hemiplegia. Bradford, of Boston, operated on a case of Bullard's.[1] A boy, aged four years, forceps delivery, idiotic, and in a state of right spastic hemiplegia. There was a scar and depression on the right parietal bone, due probably to the forceps. The trephine was first applied over this part, but the brain-substance beneath was found normal. The left side was then trephined and a porencephalous condition of the Rolandic region found. The child died the next day. No autopsy was allowed. The other case was operated on in the Infirmary, by Dr. Morton. I have referred to it when speaking of the symptom of epilepsy (Case XCVII). Dr. Mitchell, under whose care the child was, believed there was a possibility that the lesion might be a localized area in the motor zone, which could be removed, and in this opinion Dr. Sinkler and I concurred. Accordingly Dr. Morton exposed the Rolandic region and found an œdematous condition of the membranes, but no focal disease. Whether the portion removed is sclerotic has not yet been determined. The child recovered perfectly from the operation, the dressings were removed on the sixth day. The spasm of the arm has lessened and the attacks of epilepsy have reduced in frequency.

There are several circumstances which militate against the probable success of operations of this kind. The nature of the lesion is such that not much can be anticipated. When sclerosis exists the area is usually too large for removal; when porencephalus is present, we are not, as Dr. Morton Prince said in the discussion on Dr. Bullard's case, "likely to improve a pure paralysis, due to a hole in the brain, by making the hole bigger." But a more serious objection was raised in the same discussion by Dr. J. J. Putnam, viz., the existence in these long-standing cases of descending degeneration. The paralysis in such instances could not be benefited, and it is only in exceptional instances that we can expect the epilepsy to be relieved. Time alone will determine how far in the removal of centres for cortical epilepsy the improvement is temporary or permanent, and how much less irritating the scar of a surgical wound will be than the cicatrix of an accidental trauma.

More serious in many respects, and more distressing to friends and relations, are the mental defects so apt to be associated with these cerebral palsies. The subjects of bilateral hemiplegia are usually imbecile, often idiotic; the spastic paraplegic cases offer greater hope of mental improvement, and many of the patients are intelligent and learn to read and write. They rarely suffer from epilepsy, so potent a factor in inducing mental deterioration. A large percentage of the cases of hemiplegia grow up feeble-minded, a larger percentage than indicated in our table. Much depends, no doubt, upon the area and regions of cortex involved, but even in such localized lesions as that shown at Fig. 1, there may be serious mental deficiency, showing that the actual damage is more apparent. The injury to the brain is usually done at the very time when the faculties are developing and the education of the senses is preparing the way for the higher intellectual processes. It is not surprising that in so many cases the damage is irreparable and that idiocy or imbecility results. A few years ago these cases were neglected and thought incapable of education. The results which are attained by Dr. Kerlin and his staff, at the Pennsylvania Institution for Feeble-minded Children, and in other public and private establishments, demonstrate that the lesson which Dr. Seguin, Sr. labored a long life to teach has been well learned—the lesson that with patient training and kind care many of these poor victims may be rescued from a condition of hopeless imbecility and reach a fair measure of intelligence and self-reliance.

[1] Boston Medical and Surgical Journal, 1883, vol. i.

ORIGINAL ARTICLES.

A CASE OF LIGHTNING SHOCK WITH RECOVERY.[1]

REPORTED BY J. B. PAIGE, V.S.

With remarks.

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REPORT OF THE CASE. (BY J. B. PAIGE.)

The accident about to be described occurred in Prescott, Massachusetts, during a terrific thunderstorm, July 29, 1887, about five o'clock P. M.

Lightning struck the house, to all appearances the chimney of the upright part first. At the roof the current divided into three parts, one following the chimney down to the floor of the second story, then passed along a stove-pipe out of the chimney, and

[1] Read before the Medico-Chirurgical Society of Montreal, March 16, 1883.

partly to a nail in the floor by the legs of the stove, and thence by the timbers to the earth. A second subdivision of the current followed a rafter on the north side of the roof, after leaving which it could not be traced. This rafter was completely torn from its place. A third current passed down a rafter on the south side of the roof. At the lower end it divided again, one portion following the finish of the roof, passed along the other side of the L to the opposite corner, followed the track of a rolling door and reached the earth by the corner post of the house. The other part coursed along the studding of the house, near the window, and passed to the earth. Attached by a screw to the upper casing of the window was a large iron hook on which was suspended, by a brass chain, a bird-cage. One part of the current going by this chain to the bird-cage, left it at one corner, entered the body of the subject of the accident, and left the room by a nail in the floor.

That the electrical influence in this quarter was intense is proved by the fact that the links of the chain, in some places, were nearly melted apart, while the solder at the corner of the cage, where the fluid left, was completely melted. Again, the nail by which it passed through the floor was considerably roughened. It appeared as if it had been partially melted at a high temperature.

The position of the four persons about the place at the time the house was struck is represented by the letters A, B, C, D, the first three being out of doors, seated upon the floor of the piazza. D, through whom the electricity passed, was seated just inside the window.

The distance from A to B was about two feet, from B to C eighteen inches or two feet, and from C to D six or seven feet. As a result of the shock D was rendered completely insensible, C was thrown upon the floor and was unconscious for a second, in fact did not even hear the report, which was like the peal of heavy artillery. Although C and D were so much affected, neither A nor B felt the shock.

This all took place before one could realize what had happened.

A, B and C, who regained consciousness immediately, ran from the house about twenty or twenty-five feet upon the lawn. Thinking of their companion inside, they returned and found that she had been thrown from the chair in which she was sitting directly across another chair, a distance of two or three feet. She was taken out to the piazza immediately, and her condition was found to be as follows: Completely unconscious; motionless; muscles relaxed; left eye closed, right, open: face purple; pulse at wrist imperceptible; neither heart sounds nor respiratory murmur to be heard.

Later, an examination showed the course of the electric current to be as follows: It struck the head above the left eye, midway between the eyebrow and hair, which was apparently the part nearest the corner of the bird-cage; passed along in front of the ear, then to the central line of the thorax, descending by the stocking supporter, which was attached to the corsets; thence to the top of the stockings, leaving marks upon both limbs, but more especially upon the left, on the back of which, just above the knee-joint, was a burn about the size of one's hand. It had the appearance of an ordinary burn, and was only superficial. No trace of the current could be detected again until the foot was reached, from which it passed off by the joint of the great toe, tearing a place about two inches in diameter in the stocking and slipper, but not leaving the slightest mark upon the skin. With the exception of the burned spot on the posterior part of the left leg and one or two small burns on the body and the right leg, hyperæmic lines, alone, marked the course of the electricity in its passage over the body.

After removal of the patient to the piazza, the clothes about the neck and chest were loosened and artificial respiration commenced. In from three to five minutes the first sign of life appeared in the flexion of the right leg. The dark color disappeared from the face and the pulse could be felt at the wrist. It was then weak, rapid and irregular. The treatment was kept up for ten or fifteen minutes, until the body began to feel cold, when the woman was removed to the house and placed upon a bed. The moving caused a disturbance of the circulation, as was shown by the pulse, which became very faint and fluttering. In order to encourage the circulation, hot fomentations were applied to the chest, and as soon as they became cold were replaced by fresh ones.

Soon a new train of symptoms set in. There was difficult respiration. The mucus and saliva, which were very abundant, had gravitated back, and could not be swallowed because of complete paralysis of the pharynx, etc. There was, in fact, paralysis of almost all the muscles of the uppermost parts of the body, including the arms. The symptoms were those exhibited by an animal when being asphyxiated: violent muscular contraction, difficult and forced respiration, etc. To remove the saliva and mucus, which caused the obstruction, the head and trunk were lowered. Handkerchiefs were also used. These were placed over the finger and passed back as far as possible into the throat, and in this way large quantities of the saliva and mucus were gotten away.

From one-half to three-quarters of an hour after the accident, consciousness began to return and the muscles of the arm to regain strength. Sight was restored to the right eye, although it could not be moved. Though the subject could hear she could not speak. This was shown by the fact that when asked to press the hand if she felt better she responded. About this time paralysis began to disappear gradually from the tongue. Improvement continued: brief intervals of sleep were enjoyed through the night, and there was absence of any considerable pain.

The next morning, about twelve hours after the accident, there was sufficient œdema of the upper and lower lids of the left eye to close them completely; this lasted for several days, and when it disappeared there was noticed a slight effusion in the anterior chamber (?) which interfered considerably with vision. There were no signs of inflammation

of any of the parts of the eye. There was a complete return of the cerebral functions, the mind being as clear and as active as usual.

The patient could, as yet, swallow only a few drops of ice water at a time, and then with great difficulty. The trouble seemed to be in the pharynx, as it was easy enough to carry the water backward.

The paralysis passed away slowly, so that in about two weeks solid food could be swallowed. The strength of the patient was maintained during this period by thin gruels, brandy and a fluid preparation of beef (Bovinine).

To allay the great thirst of the first twelve hours, small pieces of ice were kept in the mouth.

Twelve or fourteen hours after the accident, intense pain set in about the head, neck, arms and chest. That about the chest continued during the day, but was somewhat relieved by mustard poultices. The pain in the head was constant and very severe, and lasted seven days. During the first five it was relieved somewhat by cold applications, which were replaced by hot ones on the sixth, and continued for two days. After this, the pain occurred only occasionally. The pain in the neck and arms was not so constant, but when present was severe. Shampooing relieved it more than anything.

The severe pain prevented sleep at night. This was combated by morphia and atropia, $\frac{1}{8}$ grain of the former and $\frac{1}{200}$ of the latter to the dose.

For five or six weeks the left eye was drawn inward and upward, double vision resulting.

At no time during the illness did the temperature rise higher than 101° F.

The functions of the urinary organs were not interfered with at all. Menstruation was in progress at the time of the accident, but continued as though nothing unusual had happened.

Constipation was marked for a time, there being no movement of the bowels for five days after the accident. This was brought about by the use of enemas and small doses of gray powder. After this, the bowels acted regularly.

The treatment of the case consisted in combating the symptoms as they appeared; but it is very doubtful if any good was accomplished by the use of drugs, with the exception of the morphia, atropine and gray powder, although bromide of potassium, quinine and several other remedies were used.

The patient remained in bed two weeks, then sat up for a short time daily, until at the end of four weeks she was able to take a ride of thirteen miles in the cars to her home.

Complete recovery has taken place with the exception of the left eye; the vision of which is somewhat impaired.

The management of the case immediately after the accident was conducted by Mr. Paige, then an undergraduate, who was on the spot at the time.

REMARKS ON THE OPHTHALMOLOGICAL ASPECTS OF THE CASE. (BY DR. FRANK BULLER.)

There was a steady improvement in the visual acuteness for some two months after the accident, but no perceptible improvement has taken place since then. The patient suffered severe pain about the eye and left side of the head for about a week after the injury. There is nothing abnormal in the external appearance of the eyes nor any evidence of injury to the adjacent parts.

The conjunctiva, cornea, anterior chamber and iris appear just as in the other sound eye. The pupil is of medium size, but does not respond to light quite so promptly as that of the other eye. The existing visual defect prevents an accurate estimate of accommodation, but the ciliary muscle is certainly not inactive. Vision of right eye $= \frac{6}{VI}$, slightly better with + 0.5 c. ax. 90°. Left eye, vision $= \frac{20}{L}$, not improved by any glass. All the extrinsic muscles appear to do their work efficiently.

Two hours after free instillation of solution of homatropine, gr. viij ad ℥j, there is R. H. = 1 D., vision $= \frac{6}{VI}$ L. H. = 1.5 D.; vision $= \frac{6}{XV}$. Under ordinary circumstances there is binocular vision, but a vertical prism gives a lateral convergence = 18°, abduction = 3°, adduction = 42°, and ? right hyperphoria = 2°.

It will thus be seen that there is an insufficiency of the external recti which may be her normal condition, or, in view of the fact that there was no visual disability of either eye prior to the accident, it is more probable that the left external rectus had not fully recovered from the effects of the injury.

By facial illumination there is seen to be a considerable opacity at the posterior surface of the lens very like that of an ordinary posterior polar cataract, with this difference: the opacity is obviously, for the most part, situated in the lens substance, and does not, like the so-called posterior cataract, present a concave anterior surface.

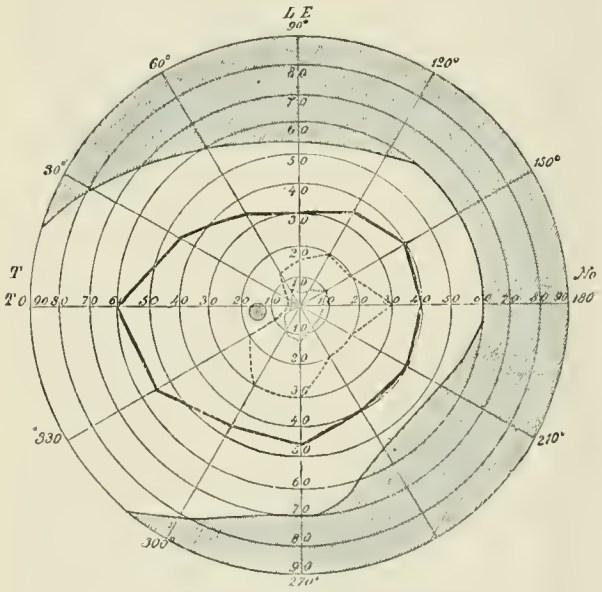
The opacity has a circular outline, but is not sharply defined, and beyond the principal opacity there are some nebulous cortical opacities extending further toward the posterior periphery. The vitreous humor contains a few floating particles so fine that they are seen with difficulty even with the aid of a + 6 D., ocular behind o. mirror. The optic nerve is very pale and its margins slightly blurred, but this may be partly due to the defective transparency of the lens. There is nothing else indicative of an optic neuritis, past or present.

In addition to the pallor of the nerve, there is a considerable diminution in the calibre of the retinal bloodvessels, with loss of the fine vessels on the papilla to about the same extent as may be observed in an ordinary case of moderately advanced simple atrophy. Several of the larger vessels, both veins and arteries, have whitish borders for some distance in the retina. Other than these there are no visible changes in the fundus oculi until we come to the extreme periphery, at and somewhat below the horizontal meridian. Here there is a broad patch of irregular choroidal pigmentation composed of ill-defined masses of dark pigment, but not so black as the pigmented deposits commonly seen in choroiditis. The anterior boundaries of the pigmented area extend beyond the ophthalmoscopic area, but about the centre of the patch there is an irregular break

about the size and shape of two of the papilla partly overlapping each other. This patch is itself partly covered with pigment, but is of a dull orange color. If due to atrophy of the choroid at this part, the atrophy is not sufficiently advanced to show the tendinous whiteness of the sclerotic. It would seem to be either a rupture of the choroid at this part or an imperfectly absorbed effusion of blood, or, what is more probable, both these conditions are present.

It will be seen from this description that the injury has resulted in damage to the external muscular apparatus, the crystalline lens, the choroid and, lastly, the optic nerve. No doubt the visual defect is chiefly due to the latter, for there is a very pronounced concentric limitation of the visual fluid, such as we might expect to find in partial atrophy of the optic nerve, but which could not have resulted from any of the other lesions mentioned.

The color sense, though impaired, is pretty uniformly restricted for all colors (see chart of field). It is not easy to explain how this has happened, since we have no knowledge of the ophthalmoscopic changes shortly after the injury.



The white area in the chart of the visual field represents the normal limits of the field of vision for white of one eye whilst the individual is steadily gazing at the central point.

The heavy black line in the chart represents the actual (much diminished) area of the patient's visual field for white. The interrupted and dotted lines are the areas for the colors red and green respectively. These are also much contracted—about in the same proportion as the field of vision for white, but less regularly so.

There might have been an effusion into the tissues of the orbit causing pressure on the optic nerve behind the eye; or an effusion of some kind into the sheath of the optic nerve, or an interstitial neuritis as a result of concussion of the nerve, and any one of these conditions might have resulted in the existing partial atrophy.

I have not been able to find in ophthalmic literature any case of injury to the eye from lightning, in which an ophthalmoscopic examination was made shortly after the injury, with the exception of Brudenell Carter's case (*St. George's Hospital Reports*, vol. v. p. 322), incorrectly credited to H. Power by T. Leber, as well as by de Wecker and Landolt. In this case such an examination was probably made, but there is no mention of ophthalmoscopic changes; moreover, the injury was not caused by direct contact of the electric discharge with the patient's body, and as the man recovered perfect vision a few days after the injury it is not at all likely that any visible intraocular lesions were present. Of the few cases that have been reported since the ophthalmoscope came into use, those presenting intraocular lesions were all actually struck by the lightning. In one (reported by T. Leber in Gräfe's *Arch. für Opth.*, Band xxviii.) the general disturbance, burning of the surface, shock and paralysis, were greater than in our case. In this instance, too, both eyes were seriously damaged. Nevertheless the ocular lesions in our case are remarkable both in their number and severity.

The injuries known to have been inflicted on the eyes of the few cases hitherto reported, may be summed up as follows: Paralysis of the muscular apparatus, including the muscles of accommodation, cataract, deep-seated changes in the ocular tunics, such as ruptures of the choroid, choroidal and retinal hemorrhages, detachment of the retina, paralysis of the optic nerve in the form of atrophy of the nerve. Four of these conditions were present or had existed in our case, and may fairly be attributed to the injury, since, as already stated, there was no known visual abnormality prior to the accident.

REMARKS ON THE GENERAL PHYSIOLOGICAL ASPECTS OF THE CASE. (BY DR. WESLEY MILLS.)

The history of the above case may be summarized as follows: The subject of the accident is a young woman, healthy, about twenty years of age, married, who was struck by lightning some six months since. The immediate effect was instant and prolonged loss of consciousness, complete cessation of respiration, and partial arrest of the circulation. The first sign of life appeared in from three to five minutes. The circulation remained in a very feeble condition for some time. When the respiratory system resumed its functions, breathing was greatly impeded by accumulations of saliva in the pharynx. Consciousness was restored in from one-half to three-quarters of an hour. There was paralysis of the muscles concerned in voice production and deglutition, and of the arms and probably other parts. After twelve hours, recovery of the higher cerebral functions was complete, with partial restoration of the ability to

swallow. Dysphagia persisted in some degree for more than two weeks.

There was severe pain in the head, chest and arms, most marked in the head, and lasting for several days.

An internal strabismus of the left eye lasted for five or six weeks, causing diplopia, then gradually passed away.

The catamenial flow, in progress at the date of the accident, continued as usual. The urinary functions were normal throughout, but constipation was pronounced for some days. The patient has completely recovered, with the exception of the vision of the left eye.

The treatment was, first, artificial respiration, with, later, the addition of warm fomentations to the chest; the subsequent symptoms were combated by morphia, atropia, gray powder and massage. The young woman's general health continues to be excellent.

It is not my intention, in these remarks, to enter into the subject of lightning shock in general, but to confine myself to a brief explanation of this particular case. Its scientific interest lies in the fact that it is an example of one of Nature's physiological experiments—or, shall we say, in consequence of its violent character and the nature of the results, pathological. At all events, it is a lesson in human physiology, as I conceive it; and human physiology proper is so meagre that every scrap should be gathered together and carefully preserved. In order to keep these remarks and the paper as a whole as brief as possible, I shall indicate my own views of the case without entering as fully as might be into the evidence on which they are based.

The unconsciousness was owing to the shock (abolition of function) of the cortical cells (and others) of the cerebrum, arising from the violent impulses reaching them chiefly along the nerves, and not by the direct entrance of the electric current into the brain—*i. e.*, the effect was physiological, not physical, chiefly. The cessation of respiration and (partially) of circulation is to be traced to a similar action on the nervous centres presiding over these functions. The heart was slowed, and its ventricular action rendered highly intermittent, owing to impulses through the vagi nerves. The condition of the circulation may be considered a reversion for the time to the reptilian type (see a paper on "Reversion," by the present writer, in the *Canada Medical and Surgical Journal* for April, 1888); but the vagus is a trophic nerve, and the heart, though being injured by the venous blood, is also being benefited by the impulses descending the vagi—hence, a preparation for recovery.

The artificial respiration and heat furnish oxygen and—what is essential to mammalian functional action of all kinds—a certain temperature. The mammal, in this case, is presently restored to its normal grade, and leaves the reptilian (cold-blooded) condition, in which it could exist for a brief period.

There are many indications to show that the cord did not suffer as much as the brain, which is explicable by the site of the original impact of the current (head). Hence the leg can shortly be drawn up—a revived reflex, probably. The menses are not interrupted. On the other hand, there is constipation not to be accounted for wholly by the inactivity in bed, but by the inhibitory influence of the brain over the cord, which latter Goltz has clearly proved to be alone essential for defecation. At first it is a shade surprising that the menses were not interrupted as the action of the alimentary tract evidently was (constipation); but when the length of the latter is remembered and its abundant nerve-supply—the extent of cord thus nervously connected, etc.—the apparent mystery clears up in part, at least.

The paralysis of the muscles of the larynx, pharynx, etc., is to be traced to the effect of the current on the nerves themselves or their centres in great part, rather than to its direct action on the muscular tissue, though the latter need not be wholly excluded. This view is borne out by the pain which followed the paralysis, and which is best referred to the molecular changes in the nerve-tissue causing increased resistance to the passage of impulses which emerge in consciousness as pain. Since there was complete and rapid recovery of all the mental powers, the injury was probably chiefly to the nerves or the nerve-endings. Was the difficulty in respiration in this case owing to the secretion of an excess of saliva, or to the normal quantity not being swallowed at all, or to both? Experiment has shown that in the lower mammals an increase of secretion may be induced in two ways: either by stimulation of the nerves of the salivary glands, or by section of the nerves, which is, of course, equivalent to paralysis. Usually, however, in the cat, etc., the secretion following section of the nerves ("paralytic secretion") does not set in for some hours. One powerful electrical stimulation of the chorda tympani nerve will cause, in the lower animals, a considerable flow of saliva, which lasts for some time after the current is withdrawn. It may be that there was an excessive secretion in our case, due to paralysis of the nerves presiding over the secretions of the glands; but, upon the whole, it seems safest to regard the effects as due to failure in deglutition, with a possible excess of secretion, the result of the stimulus of the nerves by the electric current.

The good results following the use of morphia and massage seem to be in harmony with the explanations advanced as to the cause of the symptoms.

Why were the injuries to the eye most lasting? The œdema may be explained, either by a local or central effect through the nerves. Taking into account the fact that the current impinged so near

the eye, it is likely that both factors enter into the result. As none of the nerve-endings, we have reason to believe, are so delicate, so readily injured as the retina, it is not difficult to understand why the intraocular effects should be so permanent or, in fact, should be progressive, or even multiplied in kind.

Would this patient have recovered without the assistance rendered just after the accident? Considering that respiration was suspended, that the circulation, even with artificial respiration, was so feeble that the temperature fell, that consciousness did not return for so long, it does not seem reasonable to believe in the possibility of spontaneous recovery. But the case does seem to teach, in the clearest way, the importance of using such means as those employed in this instance promptly and perseveringly.

THE POISONOUS EFFECTS OF PETROLEUM.

BY W. H. SHARP, M.D.,
OF VOLCANO, W. VA.

IN the number of THE MEDICAL NEWS of May 19th, the leading editorial is devoted to this subject, based on an article in *Virchow's Archiv* by Lewin.

For the past nineteen years I have lived and practised medicine in an oil town, surrounded by oil wells, and in daily contact with laborers connected with the oil industry, and I hope the following observations may prove of interest.

In considering the effects of petroleum it is necessary to know clearly which kind of oil is indicated, as there are different grades of natural oil which must have different effects as they are richer or poorer in the lighter products, as gasoline, benzene, naphtha and carbon oil. The heavier natural oils, of specific gravities ranging from 26° B. to 35° B., such as are produced in West Virginia at this point, in Pennsylvania at Franklin, and at a few other points, are very different in composition from the lighter petroleum oils which range from 35° B. to 50° B., such as are so largely produced in Pennsylvania and Ohio, and are used for refining for illuminating purposes. The former are almost devoid of the gasoline, naphtha and benzene found in the latter, and do not make a satisfactory carbon oil. Where this heavy oil is produced there is found less gas than accompanies the light oils.

Again, the odor of various oils differs greatly, the heavy oils being less odorous than the light oils; and light oils also differ greatly from each other, as, for example, the oils from western Pennsylvania and northwestern Ohio. There are also differences in color. Some of these light oils also are not as well suited for refining for illuminating as others, while well suited for use as fuel.

From a tank of freshly pumped heavy oil, such as is produced here, there is almost absolutely no gas; as the oil approaches in quality the light oils, the quantity of gas increases. These heavy oils up to 32° or 33° specific gravity B. are not inflammable; a lighted taper could be dropped into a tank full of such oils with no more result than if dropped into so much water. From a tank of oil from 40° to 50° B. there is constantly an escape of gas, most inflammable, and the greatest care is necessary as to lights, etc., about the tanks and wells.

The worker in these heavy natural oils runs no risk at any time from the inhalation of gas, even in the tank sheds where the oil is stored, and the engineers at the pumping-stations of the transportation companies are exposed to no dangers from inhalation of gas.

During my residence here there has not been a single accident of this kind; and I have known of but two or three instances in which men suffered from the effects of gas when cleaning out tanks in hot weather. In these cases they suffered from dizziness and headache, which effects were transitory. As much of the heavy oil is mixed with water when it comes from the wells, it is allowed to stand in tanks for some time to separate. The water is drawn off from these tanks from time to time, and has a peculiar, sweetish, sickening odor, which is very disagreeable.

In all the light oil districts serious accidents are quite frequent from the inhalation of gas. It is, I believe, the practice to have the receiving tanks at the wells closely housed with wooden sheds, at the roofs of which are ventilators for the escape of gas. This past spring, one of my neighbors, an oil man, who had gone to North Baltimore, Ohio, for work, was suffocated in one of these tank sheds while making a run of oil, viz., running the oil from the receiving tank to the transportation or pipe line company's tanks.[1] It is said that the men employed in this work by the transportation companies become somewhat accustomed to this gas and can then remain longer exposed to it before feeling its effects. Oil-well drillers have told me that the sense of suffocation comes on very suddenly. When the gas is very plenty around drilling wells and if there be any delay in getting pure air, suffocation ensues. In this section, even when drilling in light oil territory, there is little danger from this, as our derricks are seldom tightly housed, as is the practice in other regions.

During my residence here I have never met with or heard of a case of skin eruption or acne, such as Lewin describes. My opportunities for observation have been ample; for ten years I was the only medical man in this locality, and most of my practice

[1] During the past week I saw in a Cincinnati daily paper a notice of the suffocation of two workmen in a tank-shed at Findlay, Ohio.

was among those engaged in or depending upon the oil industry: oil-well drillers, engineers pumping the wells, gaugers and laborers engaged by the transportation companies, men engaged in preparing the heavy oils for market in refineries located here—but we had no refineries engaged in making illuminating oils; and I feel certain that if natural lubricating petroleum oils produce such a condition of the skin I would have seen or heard of cases. Nor have I seen them among those of our workers who handled the lighter oils.

Heavy lubricating oils applied locally are not irritating; they are as bland to the skin as the best petroleum jelly or ointment. They have had a well-deserved reputation as soothing applications to burns and wounds; the heavier the oil the better it is suited for this purpose. These oils do not irritate any inflamed surface, but relieve the pain as well as does the linimentum calcis or white lead dressing. The only disadvantages I have found in its use are that the cloths become stiff from drying, and the application is a dirty one, penetrating the bedding, etc., if applied freely. A light oil 40° to 50° gravity would probably prove irritating from the presence of benzene, etc.

Internally these heavy *natural* oils have been used in pulmonary troubles, viz., bronchitis and phthisis; persons taking them in doses of from 1 to 4 f℥ several times a day. I have never known or heard of any ill effects from their administration. Of their use in larger quantities I know of no instances. Lewin speaks of experiments made upon animals, which demonstrated the poisonous action of the heavy oils, but he does not designate what heavy oils. Most heavy oils made from the distillation of the *light* oils, or from the *tarry* residue known as "still bottoms," no more resemble natural lubricating oils than butterine from diseased and dead animals resembles the best gilt-edge butter from a crack Chester County, Pennsylvania, dairy.

He further speaks of the greater liability to acne of those who work in the heavy oils and residue at the refineries. Perhaps a closer investigation would show that this effect is not so much due to the oils as to the chemical agents used in refining oils for illuminating purposes. It is well known that the oil is treated at one stage with sulphuric acid, and later with caustic soda, to remove any of the acid left after the washing of the oils in the agitators. This I *suggest* as a point of inquiry for those who attend the workmen at large refineries.

Very different is the effect of "carbon oil" applied locally. In this section it is used as a counter-irritant in domestic medicine in cases in which prompt effect is desired. Cloths saturated with it and applied to the skin soon cause redness, inflammation and, if kept on long enough, the occurrence of a fine vesicular eruption; the vesicles are of the size of small pin-heads. I have never seen pustules from it; these vesicles dry up and the epidermis desquamates. As a counter-irritant it deserves the attention of the profession, as it is nearly always at hand; nearly as prompt as mustard, equally so as oil of turpentine, much more so than croton oil; more permanent in its effects than the first two, it stands midway between these and croton oil.

Internally I have known it to be given in doses of from a half to one fluidrachm in cases of spasmodic croup. I believe that it sometimes gives relief by vomiting; at other times by promoting secretion of mucus and relieving spasm; but of this use of it I only write from hearsay. A friend of mine, for years an inspector and tester of the various grades of oils produced here, tells me that one winter, being much exposed to bad weather and subject to attacks of acute bronchitis, he used natural oil of 29° B. gravity three times a day all winter in doses of one-half fluidounce, with decided benefit; that he daily handled oils, at times his clothes being saturated, his hands constantly bathed in it, that it never had any other effect except to keep the skin in a soft, healthy condition; that among the employés of his company he has never heard of or seen any cases of skin eruption such as I described to him. On one occasion, standing by a tank into which *light* oil was being pumped, he inhaled the *gas* for some time mixed with air. It produced a species of intoxication, so that he could hardly walk, which soon passed off when he left the immediate vicinity of the tank.

Both crude oils of *lighter* grades and refined (carbon) oil are poisonous to the inferior grade of insect life, also, if applied freely to vegetable life. When the soil is saturated with them, it is ruined for some time; but the gas is never concentrated enough in oil regions to affect vegetation.

I have made a careful search in the *American Journal of the Medical Sciences* since 1869, and in other journals in my collection, and find only two cases of poisoning by petroleum recorded, viz., in the April number of the *American Journal of the Medical Sciences* for 1873.

Case I.—A pint of "merchantable petroleum" (refined oil?) was taken with suicidal intent. But slight indications of intoxication ensued; only slight pain in region of stomach and but little febrile excitement. From entire surface exhaled a strong odor of petroleum, but breath was entirely free from it. On the urine a thick layer of petroleum floated, not as a secretion from the kidneys, but as a kind of mechanical filtration. For six days the smell of petroleum was given out from patient's skin. The urine was slightly alkaline, contained 0.1 per cent. of albumin and was rich in pus and epithelial scales. The reporter, Dr. J. Steininger, remarks that on the outskirts of Vienna petroleum is drunk by the common people in the same way and for a similar purpose as ardent spirits by others.

Case II.—(*Medical Record*, September, 26, 1885.) Dr. Duguet, of the Lariboisière, reports the case of a man, aged forty-eight years, who swallowed about one pint of ordinary petroleum of commerce with suicidal intent. He felt at once a strong sensation of oppression along the

œsophagus and at the stomach, with a sense of humming, and was extremely agitated. He exhaled a powerful odor of petroleum, and vomiting being excited by ipecac. with large quantities of milk, a great deal of petroleum floated on the ejections, as on operations from the bowels following enemata. The urine was saved. That voided before administration of the emetic contained a floating layer of petroleum one inch thick; next day the amount floating on urine was about five drachms; on second day one drachm; then gradually ceased. Some albumin was present, but disappeared with the petroleum. During the first four days the petroleum prevented urine from undergoing decomposition for ten days.

From these two cases petroleum would not seem to be very poisonous, and to be chiefly eliminated by the skin and kidneys, especially the latter, unchanged by transudation.

That it is the lighter oils in the crude petroleum which produce the intoxicating effects, and that the acne seen in workmen is due to something used in the process of refining are highly probable; certainly they do not arise from contact with the natural oils of the heavier gravities, viz., 26° B. to 35° B.

THE GENERAL AND LOCAL EFFECTS OF PARAFFIN OIL UPON THOSE WORKING IN IT.

BY JOHN K. MITCHELL, M.D,
ATTENDING PHYSICIAN TO ST. MARY'S HOSPITAL, PHILADELPHIA.

THE diseases incident to various trades and occupations have not received a great share of the attention of physicians, with the exception of certain neuroses, which have been very thoroughly studied. My own notice was first called to the subject of this paper when serving as resident physician to the Episcopal Hospital of this city, some five years ago. In the dispensary at that time I had the opportunity of seeing several cases of eruptions caused by kerosene, or the oils refined from it. Unfortunately, I was ignorant of their interest and novelty, and in the hurry of a very crowded service kept no note of them beyond the mere diagnosis in the dispensary book. My recollection is that none of them was so bad as the cases which I have recently studied at the works of the Atlantic Oil Refinery. I noted them merely as "general furunculosis," and they were treated, as skin diseases are apt to be in general out-service, with arsenic, and by directions to the patient to "wash." They did fairly well, and slowly recovered. Afterward, when house physician, I saw a large number of cases, in the charge of Dr. Morris J. Lewis, of a trouble which we believed to be caused by the handling, by unaccustomed men, of refined kerosine oil.

The subjects were all sailors, engaged in the loading of oil in barrels on ships lying at Point Breeze. The men were seized, always suddenly, and always after some days of the labor, with cramp-like pains in the stomach and intestines, together with severe constricting pain about the lower part of the chest, with obstinate, slight diarrhœa, with nausea and, occasionally, with some vomiting. After attempting to trace the disease to the influence of the river water, and excluding that, and finding that they were lodged much as usual in their hard-working calling, and living in an accustomed way, with the exception that, owing to the harbor rules against lights on board vessels loading oil, they were obliged to eat, for the most part, cold food. But this is by no means unusual at sea, and we were finally forced to agree with the men, who themselves attributed their difficulties to the vapors from the oil. The cases yielded to simple treatment.

Within the last few weeks the subject of skin trouble from oil was again suggested to me by a talk with Mr. Livingston, Superintendent of the Atlantic Oil Refinery at Point Breeze. The first case which I saw from this cause has already been shown at the College of Physicians.

My notes of this man's history and condition are like those of all the others I have seen, differing only in degree. I will give them in full, commenting afterward on the causes and peculiarities.

J. J., aged thirty-nine years, German. A middle-sized, strongly made man, with a good family and personal history. He has worked three years in the paraffin department of the oil refinery, at first out of doors, handling the products, but not much in direct contact with them. During the second year he had a slight eruption of comedones and boils, which soon disappeared. In the autumn of 1887, he was put at work inside the press-rooms. In October, he had some boils on his arms; soon after, they broke out on his legs; for a time they varied in severity, but in January and February of the present year, they became so painful and troublesome that he stopped his work on March 6th.

On March 8th, I made a careful examination. The appearance of the man's face was not peculiar except that there were two or three parallel rows of largish comedones upon his forehead. On stripping him and examining his trunk, similar comedones were found distributed over his shoulders, chest, belly, arms and legs, together with numerous rounded, elevated, angry swellings on a red, inflamed base, varying in size from a small pimple one-eighth of an inch in diameter to a huge boil at the point of suppuration, and two or two and one-half inches across. Some of them were simply red swellings, others presented evidence of containing pus. The arm, from about two inches above the elbow anteriorly to the wrist, was almost covered with them, and both the anterior and posterior surfaces of the thighs, from above their middle to the knee, showed scarcely a square inch of healthy skin. Below the tubercle of the tibia the legs showed nothing wrong.

A closer study of the surface with a magnifying glass showed that the smaller swellings bore a hair about the middle of them, and this usually sprang out of or just along side of the central black spot of

the comedo. It was evident, both here and in the other cases, that the comedo was the original lesion. The distribution of these was extraordinary; not only were they seated on the face, in the interscapular space and upon the chest, in all which situations they may be commonly found in persons who suffer from this form of skin trouble, but their presence was universal. Rows of them ran across the belly, particularly just above the umbilicus and around the waist; they were even crowded together on the backs of the hands. The recent ones were like ordinary comedones, simple black spots. The next stage showed these spots a little larger and behind them tiny swellings under the skin; in the third stage the spots were distinctly depressed a little, or perhaps it would be more accurate to say that the edges of the skin surrounding them were well elevated and slightly red. They then continued to swell and grow more inflamed, until the inflammation had pushed up the whole swelling, and in place of the comedo there was a round red tumor, the color shading off into the normal about it. The swelling itself was hard, the tissue around thickened and dense, and the inflammation seemed to extend deeply. Apparently some of these remained in this state; others grew larger and larger, or several ran together until their size was, as I have said, in some instances, more than two inches in diameter. A close examination showed upon the surface of all of them one or more of the black spots about which the inflammation had begun. The whole of the front of the left thigh was occupied by five or six such tumors. The formation of pus in them appeared slow, for, on incising one of half an inch across, a single drop of pus was all that it contained, quite deep down. The microscope revealed no unusual character in this pus, except that much sebaceous matter was mixed with it. A comedo removed entire by careful picking out with a needle, was found, with a powerful glass, to present only the ordinary appearance of such cysts, except that the dark-colored matter which forms the top seemed to line completely the little oval sac on all sides, as though secretion of it had taken place from within. On cutting into it a microscopic study discovered nothing save sebaceous débris and this unorganized dark pigment. The result of numerous examinations of pus and the contents of these cysts was the same in every case, with one exception, which I shall mention later.

The patient stated that he had little pain, except that the swelling made his movements very stiff, and exertion stretched the skin so as to hurt him. The boils, he said, he opened himself when he thought they had "come to a head," and that, before they had become so numerous, this had relieved him greatly each time. His functions were in perfect order, and his appetite good. His skin had a very greasy feeling, although he had washed thoroughly just before coming to visit me. I may add here, that after the first baths which he took during his stay at the German Hospital, the surface of the water in the tub was noticed to be covered with floating oil.

I examined his blood, but found the corpuscles perfect in size and shape, and the hæmoglobin 59 per cent.

I am indebted to the kindness of Dr. George A. Bodamer for the following notes of the foregoing case, while under his charge in the German Hospital

"During treatment in hospital new furuncles made their appearance and old ones relapsed, very often to the extent of formation of abscesses, which were opened and considerable pus eliminated. From this condition a rise of temperature occurred, seldom, however, above 102°, and ranging between this and normal. The soda baths seemed to give him great relief and cleanse away the fatty matters. After such a bath, to rub himself with a coarse towel, would dislodge, to a surprising extent, the comedones. The furuncles which relapsed and formed abscesses were mostly on the upper parts of the legs and arms. Another symptom of which he complained was intense pain at night, sometimes to an extent requiring morphia."

I have since seen this patient, who has almost entirely recovered.

As I have said, this case presents the features of "paraffin eruption" in a typical manner. Before speaking of the variations which I found in the details of some other cases, I will describe briefly the process of paraffin making, in which all my patients were working. After several distillations for removing oil of different specific gravities from the crude petroleum, there remains a heavy tarry residuum, by a new distillation of which paraffin oils are distilled over, and pure carbon is left in the stills. The paraffin oil is treated in huge tanks, with sulphuric acid to destroy any organic matter which may be present, then with soda to neutralize the acid, and then with pressure, hot in one, cold in another chamber, the latter kept artificially cooled by brine which has been chilled by an ammoniacal process. The men in the room in which cold pressure is applied to the paraffin wax are those who suffer worst and most frequently from the eruption. There are several probable reasons for this. I was told by the superintendent that new men were generally set to work here first. The work consists in the carriage of the paraffin, which is about the consistency of stiff vaseline, from the receptacles where it has been cooled, to presses into which it is shovelled, and there squeezed to remove the oil.

The presses are arranged like cider-mill presses, and the packing involves much handling of the substance. The men were all working with their sleeves above the elbow, their trousers tightly tied below the knee, and loose gaiters of cloth or bagging strapped about the calf. The warm room was cleaner and much better ventilated, and although the process is similar, there is less direct contact with the wax.

In these two rooms I saw a number of cases. I shall only go into the details of one or two. It

appears from the testimony of the workmen, as well as from that of the superintendent, that, while most men are afflicted in from three to six weeks after going to work, some men never suffer at all. I saw one laborer who had been six years in this department, and never had had any trouble; but except the one already described, the worst eruption which I studied was in an Austrian workman who had been six months in the paraffin rooms before he had any trouble. Two months after the eruption appeared, slight improvement began, and it was just at this time that I saw him. In him the boils were chiefly on the arms and shoulders. The legs were less affected. I examined the urine of this patient very carefully, but could find nothing abnormal. In studying his blood, I did discover a curious but isolated fact. There was a distinct difference in the sizes and shapes of the corpuscles. The red corpuscles were cup-shaped, balloon-shaped, ovoid or crenated, and the sizes varied a good deal.

In three examinations of this man's blood I noticed this condition of poikilocytosis growing less in each. In the last examination the blood seemed to have returned to a natural state. The blood was studied within a minute of its withdrawal, so as to be sure of its freshness. The patient's general health was excellent.

In one case, in which the skin lesions were few, I found what I took to be fat crystals in the pus removed from a boil, and these were present in all of several slides made from it. I studied the blood, pus and urine in several other cases without noting anything unusual.

Anatomically, it is interesting to observe the situation of the boils. I believe that every one of them began in a hair-follicle, or at least this was true of every one of which I was able to note the commencement. About this seat the inflammation centred. If the hair-follicles and the sweat glands be as intimately connected as is sometimes asserted, this could hardly be otherwise. Again, it is at least curious that in no case were any boils observed upon the head, though, of course, this situation is usually well protected by a hat from contact with the oil; still, if it penetrates through several thicknesses of clothing to the limbs, why should it not make its way past so slight a barrier as a light cloth or straw hat?

To these details is to be added the fact that the general health of the workmen in paraffin seemed to be very good; those who had never had the eruption and those who had convalesced from it had clean skins and every sign of good condition.

Men suffering from the boils appear not to be affected beyond the local irritation unless it grows very severe. The paraffin seems to have no other than a local action; new men are attacked, as I have said, usually within a few weeks, sometimes not for months. In ordinary cases the irritated regions are the flexor surfaces of the arms, the front of the belly above the waist and the thighs; rarely the lower leg. The Superintendent of the Atlantic Company told me that his long experience in the oil regions and in Philadelphia had made him sure that friction was a factor. With this I incline to agree. The rolled sleeve rubs into the hollow of the elbow and below it, and here are the most spots on the arms. The trousers are strapped about the waist, and in several men I found a row or two of pimples and comedones extending around the body at this height when the abdomen was otherwise clear. The trousers' legs are fastened below the knee, and this makes them rub the knee and draw tight over the thigh. The clothes, of course, are soaked with the oil, and it is rubbed persistently into the skin by the friction of the moving garments.

I am a little at a loss to account for the cold-room men suffering more than those in the warm room. The latter are rather less in actual contact with the oil, and perhaps the warmth of the room renders the oil more fluid, and promotes a sweat-secretion which helps to carry it off. New men require some suffering to teach them the necessity of washing both themselves and their working clothes, and it is in the cold-room, as above mentioned, that new men commonly begin.

The workers in benzene suffer, I am told, in a similar way, but I have not been able to see any cases; and in the oil regions, pump-men, who are liable to be splashed by the crude oil, have the eruption badly; but here the crude oil is handled entirely by pipe-lines, so that the laborers have no direct contact with it.

I have not seen or heard of any cases such as Joseph Bell describes, in which paraffin had caused an epithelioma of the scrotum (*Edinburgh Medical Journal*, xxii. part i. p. 135).

I believe the only case hitherto reported in this country is one described in a brief note by Professor Harrison Allen in the *American Journal of the Medical Sciences* (1882, N. S., xliii. p. 92), in which kerosene oil was the cause.

I have recommended to the Superintendent of the Refining Company, who requested me to suggest a method of prophylaxis, that he should try to get the men to use a weak soda solution for their washing after work.

Note.—No reference has been made in this article to a very interesting paper by Dr. L. Lewin, "Ueber allegemeine und Hautvergiftung durch Petroleum," in *Virchow's Archiv*, cxii. H. 1. Dr. Lewin studied several of his cases at the Atlantic Oil Refinery, and gives an excellent lithograph of the lesions in one. The present paper, however, was completed before the appearance of Dr. Lewin's, and I have left it as originally written.

A CASE OF ABSCESS OF THE LIVER, WITHOUT THE USUAL DIAGNOSTIC SYMPTOMS.

By JOHN L. DAWSON, Jr., M.D.,
of Charleston, S. C.

On March 6, 1888, I was summoned to H. S., a mulatto, male, aged thirty-five. During the early morning of the day previous he had been feeling badly, but had no prominent symptoms, merely a general malaise. After a restless night, he was suddenly seized with a severe chill, lasting for twenty minutes.

He was seen for the first time about two hours after this rigor, and found with a full, bounding pulse, moist skin and a temperature of 102° F. He had a history of having had an attack of malarial fever nine years before, and having recently spent several nights on the confines of the city in pursuance of his avocation, that of a policeman. The presumption was that we had to deal with an acute attack of miasmatic poisoning. He was given a mercurial purgative and ten grains of sulphate of quinine at bed-time, to be followed by five grains of quinine in the morning.

The next morning his temperature was normal, and his skin was secreting actively. His bowels had been evacuated and all of his functions were acting well. Toward evening he had another chill, followed by a rise of temperature, and again his temperature fell toward morning. This state kept up for three or four days, when he missed his evening chill, but the rise of temperature remained; falling from 101½° or 102° in the evening to 99° or 99½° in the morning. His sweats became more profuse. Quinine had no effect whatsoever; it was increased until at the tenth day he had taken grs. x morning, noon and night. This failed to produce any sign of cinchonism. Antipyrin and acetanilid were both tried at the rise of the fever toward evening, but abandoned on account of the production of more intense sweating. Every function was acting normally. The urine, though high colored and somewhat scanty, gave no evidence of disease when subjected to chemical tests. The bowels, naturally inclined to costiveness, acted every second or third day, and were normal in every respect. Percussion and auscultation of the thoracic region gave no signs whatsoever of pulmonic or cardiac lesion. There was no abdominal pain, no tympanites, no iliac gurgling and no rose spots.

We were at a loss to account for this daily exacerbation of temperature unaccompanied by any symptoms of its cause, until the end of the second week, when the rigors suddenly returned. They were very intense and of long duration; the temperature rose to 104° in the evening, with a morning decline to 100° or 101°. The patient was becoming exhausted, rapidly losing flesh and spirits. The actions at the end of the second week gave the first symptoms. The bowels, after having been confined for two days, were opened by a simple laxative, and the feces were white or of a very light clay-color, of a soft consistency and offensive odor, having very much the appearance of mixed mortar. Evidently the liver had ceased to act That organ was again examined and its outline carefully made. There was no enlargement and no tenderness on pressure. The patient had not a single ache or pain anywhere, slept well and digested his nutriment easily. These rigors, light colored stools and exacerbations of temperature continued for six weeks, the patient gradually losing flesh and strength, until April 18th, when he sank into a comatose condition with muttering delirium and all the evidences of approaching dissolution.

The diagnosis of the case was an exceedingly difficult one, there being no collection of symptoms to guide us. The clay-colored stools, the constant pyrexia, the profuse sweats and the occasional severe rigors pointed to septicæmia. The antecedent history gave no evidence of importance, but we suspected abscess of the liver. Abscess or a collection of pent-up pus would account for the sepsis, and the absence of bile in the excretion showed a derangement of the liver. Upon these two slight signs we made the diagnosis of hepatic abscess. Three days before the patient's death the liver was carefully examined in hopes of finding some point of swelling or fluctuation, and an aspirator was taken to the bedside to attempt a confirmation of the diagnosis, but failing to find the slightest physical sign my consultants agreed that the attempt was not warrantable.

Autopsy.—On April 26th, six hours after death, the cadaver was opened and the abdominal contents examined. The liver presented an abscess of the right lobe containing about four ounces of thick, grumous, yellow pus. The abscess was situated about half an inch to the right of the broad ligament, on the upper surface of the right lobe against the diaphragm. The rest of the organ was normal. The gall-bladder contained some bile but was not distended. The stomach and intestines were normal, but shrunken and empty. Kidneys normal. Lungs, heart and brain not examined.

Remarks.—The interesting features of this case were the total lack of pain in the hypochondriac region; the fact that an abscess of such a size could have existed without giving rise to any symptoms save those of sepsis; and an inability to evacuate the pus had the diagnosis been indisputable. There was no needle in an ordinary aspirating case long enough to have entered the abscess cavity by external puncture.

Although there was a total absence of bile in the feces there was bile found in the gall-bladder. The skin and conjunctivæ were not in the least tinged with biliary coloring matter, and at no time during the disease was there evidence of icterus. The skin was somewhat waxy in appearance, but this was not taken into consideration on account of the natural color of patient, who was a mulatto of an albino cast.

HEBRA'S BATH CURE IN PHAGEDENA.

BY ALLEN J. SMITH, M.D.,
ASSISTANT DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

THE following case, illustrative of the beneficial effects of the prolonged bath, suggested by Hebra in certain dermal affections, occurred under my care, as interne in the venereal wards of the Philadelphia Hospital, in 1886, and the prompt relief in a case of such grave prognosis, has seemed to warrant its being recorded.

R. M., about twenty-five years of age, a concert-hall singer and performer, had applied in February of the year for treatment of a chancroid of the prepuce contracted several weeks previously. He was a well-built young fellow, but of rather poor general health, due to his loose and irregular mode of life. He denied syphilis, but had had gonorrhœa several times. The foreskin, which was large and œdematous, was removed by the house surgeon on account of the discomfort and trouble occasioned in urination and from the retained secretions. For the first few days, no untoward symptoms were manifested; but presently the wound took on the phagedenic type, and slowly advanced, in spite of every treatment, to the destruction of the penis. Several enlarged glands in both groins shortly suppurated, were opened, and, failing to heal, were also attacked by the process. In August, when he came under my care, he had been under more or less continuous treatment by the internal exhibition of the potassio-tartrate of iron, with external dressings of the same, had had local applications of fuming nitric acid and other similar agents, had had specific remedies—all to no purpose; he was also receiving special dietetic treatment. The local condition and his general health, however, were both steadily proceeding to the worst; and a consultation of the visiting staff had decided against amputation of the penis, as a *dernier ressort*, as without hope on account of the advanced stage of the disease. The larger portion of the glans had entirely disappeared; the process had extended back over the penis, which was of the average size, until within less than an inch from the abdominal wall; almost all the skin was removed, and the spongy bodies were markedly involved. The superficial structures of the lower iliac regions were invaded to a marked degree, and the whole case was regarded with grave doubt as to the final outcome.

With permission of the surgeon in charge, Dr. A. W. Ransley, the man was at once ordered to be placed in a sitz-bath every day for as long a time as he could remain, the water to be kept at the body temperature. After removal from the tub the sores were dressed with iodoform, and the patient kept in the recumbent position, and the diet carefully regulated. The first day, he remained in the tub somewhat more than two hours, and the second, about four hours. On the third day, he remained in the water about five hours, and by this time the phagedenic process, which had been of late rapidly advancing, was visibly checked; and, too, the pain attending the sores was so much lessened that the morphia and camphor, which he had been regularly receiving every day, were discontinued. After the third day, rapid and astonishing improvement took place in the local condition, as well as in the general health, of the patient; and after this time, he spent about eight hours daily in the bath, and in a short time was permitted to walk about when not in the tub. Within the month, he was brought before the class as practically cured, but several small and deep portions of the sores remained open some weeks longer, and eventually required to be touched with a caustic before they finally became cicatrized. The vast bulk of the cure, however, was accomplished within four weeks from the commencement of treatment.

It was feared that the hard cicatricial tissue which covered the penis would react disadvantageously in case of erection; but compensation from the healthy epiderm about the genitals took place gradually, and, when last under observation, several months ago, the penis, while disfigured, was not a source of inconvenience. Several small perforations into the urethra, near the end of the glans, have persisted, causing a sort of water-pot stream in urinating; not, however, incommoding the man to the extent to have him consent to a secondary operation.

No debilitating effects were experienced from the prolonged immersion during the treatment, and not the slightest untoward symptom required attention. That the influence of the bath is only local goes without saying, and the marked improvement in the man's general condition could not have happened except from its beneficial result upon the sores primarily. A trial of the bath upon a general syphilitic, with large, deep tubercular ulcers upon the thighs, was followed by no result whatever; although, later on, these yielded to specific treatment combined with local applications of nitrate of silver and the écraseur.

223 S. SEVENTEENTH ST., PHILADELPHIA.

MEDICAL PROGRESS.

The Treatment of Diabetes Mellitus. — EICHHORST (*Schweiz. Corr. Bl.*, No. 13) cautions against the sudden institution of an absolute meat diet, as this carries with it certain dangers. Saccharin is useful in the dietetic treatment of diabetes, but must not be given indiscriminately, lest an unpleasant, sweetish after-taste remain or nausea or disgust arise. The author considers saccharin-cocoa a useful beverage, notwithstanding that it contains a not inconsiderable quantity of starch.

Little is to be expected from medicinal treatment, though Eichhorst saw a case treated with arsenic and another with opium, in which the sugar disappeared from the urine. Of treatment at the springs, the author gives Carlsbad the preference. The majority of patients return from Carlsbad with urine free from sugar. The cure is, however, not permanent. Antipyrin is not available in diabetes mellitus; in a case of diabetes insipidus, on the contrary, in which three gallons and a

half of urine were daily passed, the amount was permanently reduced to the normal upon the exhibition of seventy-five grains of antipyrin daily.—*München. medizin. Wochenschr.*, July 10, 1888.

The Treatment of Tension as met with in Surgical Practice.—In a lecture delivered before the Royal College of Surgeons of England, Mr. Thomas Bryant summarized his views as follows:

1. The pain associated with every form of inflammation of the bone or of the peritoneal covering is due to tension, and the severity of the pain is a fair measure of its intensity.

2. In acute inflammation of the bone or its periosteum, tension is the chief cause of necrosis; and in the subacute and chronic forms, it is a potent cause of their chronicity, as well as of the destructive changes which, as a rule, follow.

3. The relief of tension, wherever met with, when the result of inflammation, is an important principle of practice which should be always followed. In bone, the principle is most imperative, on account of the difficulties under which natural processes act in that direction, by reason of the absence of elasticity or yielding in bone, and by reason of anatomical arrangements of its vessels which favor blood stasis.

4. To relieve tension in the softer tissues of the body, the local application of leeches, local or general venesection, acupuncture, aspiration, punctures and incisions may be requisite; whereas, to carry out the same practice in endostitis or periostitis, subcutaneous or open incisions down to the bone, and the drilling, trephining or laying open of bone by a saw, may be required, the choice of method having to be determined by the requirements of the individual case.

5. In the early or hyperemic stage of inflammation of bone, before destructive changes have taken place, experience seems clearly to indicate that the relief of tension—as indicated by a dull, aching pain, etc.—by means of drilling or trephining into bone, may arrest the progress of the disease, and help toward a cure by resolution; whereas, in the exceptional cases in which this good result does not take place, suffering is saved and destructive changes are limited.

6. In articular ostitis, of every kind and variety and in every stage, this mode of treatment cannot be too strongly advocated, as tending toward the prevention of joint disease.

7. In acute or chronic abscess of bone, diaphyseal or epiphyseal, the abscess cavity must be opened as any other of the soft parts, drained and dressed in the most appropriate way—the principles of treatment being the same in hard or soft tissue, although they are modified by the anatomical conditions of the parts.—*Medical Press*, July 11, 1888.

Aphasia with Disturbance of the Musical Faculty.—Kast, of Freiburg (Verslg. d. Südw.-deutsch. Neurologen u. Psychiater), has reported a case in which, in consequence of a traumatic aphasia, inability to sing manifested itself, while the patient remained capable of discriminating the finest intervals and of detecting errors purposely made by the musician. When the patient attempted to sing an air, the rhythm was precise, but he could produce no melody. The speaker also had under treatment a violinist suffering with cerebral syphilitic aphasia, but with unclouded intelligence. In this case, too, the musical disturbance is of a purely motor nature. The patient is unable to make the necessary movements of execution, but is cognizant of his errors, and accurately detects those made by others. By industrious exercise he has made good progress in singing, but in violin playing, on the contrary, there has not been the slightest improvement.—*Wiener medizin. Presse*, July 1, 1888.

Resection of Intestine for Intussusception.—Dr. Vasilieff describes in the *Chirurg. Vestnik* the case of a convict, aged twenty-five, who was seized with abdominal pain and vomiting. Laparotomy was performed in the prison hospital at Warsaw. A swelling was soon detected in the right hypogastrium, when the hand of the operator was passed into the abdominal cavity. This swelling was drawn forward and found to be an advanced invagination of the ileum into the colon; there was a very long meso-cæcum. The invaginated small intestine could not be reduced; so an elastic ligature was tied around the gut in two places, and the ileum and mesentery were divided. Then the invaginated ileum was readily extricated and about seventeen inches were resected. The abdominal cavity was well washed out with a solution of sublimate, and the cut ends of the gut were fixed by sutures to the abdominal wound. Much gas and fecal material escaped when the ligatures were untied. At the third week, the patient had an attack of hypostatic pneumonia, but recovered. At the sixth week, Dr. Vasilieff did an operation for the cure of the artificial anus. About six inches more of the intestine were resected, and the cut ends united by Czerny's suture. On the third day a motion was passed, but on the fifth, feces were found in the dressings. Three attempts to close the fecal fistula by suture failed. Digital exploration showed that a spur or valve was beginning to form. To this spur a pressure-forceps was applied; it fell off on the third day. Ultimately the fistula was completely cured.—*British Medical Journal*, July 21, 1888.

Secondary Fever after Scarlatina.—Gumprecht, carefully excluding complications and extraneous conditions, in a study of 228 cases of scarlatina, at the General Hospital at Friedrichshain, found a secondary fever in 13 cases, or 5.7 per cent. of all. He thus sums up the results of his study: 1. In a small proportion of cases of scarlatina there follows a distinct secondary fever, without detectable complication. 2. This fever immediately succeeds the scarlatina, or sets in some days after the temperature has reached the normal, and lasts of itself a few days to almost two weeks. It usually disappears with improvement in the general condition, and in the vast majority of cases terminates in recovery. Death results from exhaustion or from the occurrence of grave secondary complications, to which the secondary fever seems to predispose. 3. The fever is probably a distinct form of secondary infection and is related to the streptococcus of scarlet fever. It is also probable that the streptococcus finds entrance through the inflamed tonsils. 4. The biological activity of the streptococcus seems to exhaust itself in the pyrogenic action as a visible expression. 5. For the practitioner the recognition of the secondary fever demonstrates that the continuance of fever does not necessarily make the prog-

nosis of scarlatina the worse, but that he must be prepared for severe complications occurring late.—*Deutsche medicin. Wochenschr.*, July 5, 1888.

For Eczema of the Anus and Genitals.—LUSTGARTEN recommends the following ointment in this painful affection :

R.—Oleate of cocaine . . . ½ to 1 part.
Olive oil . . . . . 2 parts.
Lanolin . . . . . 10 parts.—M.

Apply this ointment twice a day to the affected part. —*Gazette de Gynécologie*, July 15, 1888.

The Diagnosis and Treatment of Ulcer of the Stomach.—PROF. GERHARDT, at the commencement of his address on this subject before the Berlin Medical Society, observed that catarrh of the stomach, which formerly took the place of a diagnosis, was now a rare disease. Cardialgia, that had formerly, as a functional disease, occupied a very lonely position, had now got nervous dyspepsia and incontinence of the pylorus as associates. In place of the anatomical conception of a disease, the physiologist had rather come to the front. It was known that ulcers of the stomach heal very quickly, and it had been repeatedly shown that portions of mucous membrane could be removed from the human stomach without any permanent ill effects. In gastric ulcer we had not alone to deal with a necrotic process, arising from auto-digestion, but with a chronic ulcer, and in this disposition to chronicity lay a distinguishing factor as opposed to the loss of substance. A third factor was mostly to be sought in the action and characters of the gastric juices. Only in a few cases, in old callous gastric ulcers, for example, could the reason for the permanency be found in the structure of the tissues.

In the majority of cases it was some change in contents of the stomach that acted on its walls and gave origin to the continuance of the ulcer. Injuries from medicines, such as tartarized antimony and salicylic acid, were to be taken into account, forms of fungi, as also a certain hyperacidity of the contents of the stomach. A great danger to the patient lay in the bleeding to which the ulcers gave rise. In his Würzburg statistics, bleeding took place in 47 per cent. of the cases. Lebert in 104 cases had only remarked its absence in 22. The hemorrhage did not always take place from the vessels of the stomach itself, but from those of neighboring organs, for old ulcers often had their floor in other organs, most frequently in the pancreas, next in the left lobe of the liver, more rarely in the spleen. Vicarious menstruation could take place even through a healthy gastric mucous membrane, but such an occurrence was extremely rare. The absence of any palpable tumor had been adduced as an important negative symptom of gastric ulcer; he did not place much reliance on that. According to his views, four kinds of tumors could be present with gastric ulcer: old ulcers with callous margins, which could often be felt through the abdominal walls, or through the left lobe of the liver; another kind belonged to the pylorus, and was a tumor of indirect origin, from extraordinary thickening of the pyloric musculature; circumscribed exudation around perforations gave rise to a third and very rare form; a fourth kind was caused by the crowding of neighboring organs into a large gastric ulcer. In view of all this, the examination of the contents of the stomach was very important.

As regarded the much discussed hydrochloric acid question, he had lately, in twenty-four cases of circular ulcer, found the reaction normal in seventeen cases, but not in seven. Three of these had had hematemesis, two were strikingly anemic individuals, in whom the absence of acid reaction was explainable. The hydrochloric acid was occasionally considerably diminished after serious loss of blood. The observations of others agreed with this, and it must be taken as an undoubted fact, that, in some cases of gastric ulcer, the increase of the hydrochloric acid, which had been generally set up as an absolutely certain sign of the existence of a gastric ulcer, might be wanting.

The normal amount of hydrochloric acid in the digesting stomach varied greatly—between 0.05 and 0.4 per cent. The hydrochloric acid reaction was generally absent in the carcinomata, but exceptions were met with. In sixteen cases of carcinoma observed by him the acid reaction was present in two. The duration of the ulcer was sometimes as long as twenty-five to thirty years, with intervals of good health intervening, so that the patient was looked upon as cured. If a disease of the stomach had lasted three years without the formation of a tumor, we were justified in assuming the probability of a gastric ulcer. The seat was generally to be determined by the situation of the pain, which was rarely absent in fresh ulcers. The presence of pain was the more valuable for diagnosis when it was not near the xyphoid cartilage, but at a distance away, when it coincided with tenderness on pressure, came on at a fixed time after food and was worse in certain portions of the body. With contraction of the stomach it was generally at the cardiac end, with dilatation at the pyloric. With tenderness on pressure and the presence of a tumor, one would conclude the case to be one of ulcer of the anterior wall of the stomach, with a frequent bleeding one in the posterior wall, because tumors in front were more inclined to perforation, those behind more to hemorrhage. When a patient abstained from food, from pain in the stomach, and became thin and reduced in consequence, the disease was more probably ulcer, hardly carcinoma, rarely nervous dyspepsia. In the case of recent ulcer great loss of flesh was rare, but emaciation was often observed in old cases; weighing of patients was of great importance from a diagnostic point of view.

As regards treatment, diet took the first place, and, besides this, regard to the etiological condition and the character of the contents of the stomach were of importance. It had been proposed to feed the patient per rectum, but in many cases this was not practicable, as frequently there was a persistent hypersecretion of gastric acid. In recent cases, milk diet often sufficed, but in old ulcers, in which structural changes had taken place, milk was frequently not borne at all. Peptones he could not praise. Even if they could be taken, they caused a secretion of gastric juices, as Schiff had shown. In cases of profuse hematemesis and perforation, on the other hand, they were very serviceable per rectum. Peptones were, therefore, very suitable for cases in which alimentation by the stomach could not be carried out. In many cases a continuous secretion of gastic juice was present; this was diverted from the ulcer by meat or egg diet. Most physicians, therefore, recommend a diet mainly animal,

meat, milk or eggs. In cases of stenosis of the pylorus in which a tendency to lactic and butyric acid fermentations was present, one was compelled to give a diet consisting principally of flesh meat and to avoid the hydrocarbons as much as possible.

As regarded drugs, he did not think the use of morphia justified except in extreme cases, as under its use the patient was more easily inclined to indulge in errors of diet. In cases of doubtful diagnosis, hydrochloric acid was much employed; in cases of anemia, it was advisable in exceptional cases. He had obtained good results with perchloride of iron. Alkalies had not obtained much repute in the treatment of circular ulcer. Bicarbonate of soda and bismuth were principally employed on account of the property possessed by the latter of covering the mucous membrane of the stomach. It was much more useful to bring the walls continuously into contact with weak alkaline fluids, with the mineral waters of Carlsbad, Ems, Tarasp, etc. The first named, according to Jawoski's experiments, had the property, by its steady use, of checking the acid secretion, or of converting it into its opposite. Washing out the stomach with solution of common salt and the treatment by nitrate of silver introduced by G. Johnson were noted, and the frequent good effects of the latter. Condurango had a favorable influence. The most important advance of recent times was washing out the stomach. In old cases it was strongly to be recommended, but in those of recent origin there was danger of hemorrhage being induced. Moreover, some patients submitted to it with difficulty. It acted as a reliever of pain and an excitor of appetite; constipation and dilatation of the stomach ceased, and healing often took place.

The question of definite healing was a very difficult one. He had once had the experience of a patient coming one day to thank him for curing him of an ulcer of the stomach, and of being invited the next day by the patient's regular attendant to the post-mortem examination. On his return journey home he had committed gross errors of diet, and on the day following his ulcer gave way. It was to be noted that patients were frequently weeks and months without pain, with the ulcer still present, the pain at once returning on indigestible food being taken. It was, therefore, advisable to extend the treatment until the weight had increased, spontaneous pains had ceased and tenderness on pressure was no longer present. It was not possible with our present methods to prove a definite cure with absolute certainty. —*Medical Press*, July 18, 1888.

For Chapped Nipples.—

℞.—Salol . . . . . 1 part.
Ether . . . . . 1 "

Dissolve and add elastic collodion thirty parts.—*Gazette de Gynécologie*, July 15, 1888.

Treatment of Gout.—Prof. Jaccoud recommends a copious diluent draught and an exclusive milk diet in the treatment of gout; in cases in which there is considerable fever he gives a small quantity of hydrate of bromal. Preparations of colchicine and of salicylate of soda, though excellent as anæsthetics, are to be avoided. In patients affected with interstitial nephritis these substances produce most serious toxic symptoms.—*British Medical Journal*, July 21, 1888.

The Treatment of Chronic Diarrhœa with Silicate of Magnesium.—At the last session of the Paris Société Médicale des Hôpitaux, Debove recommended the silicate of magnesium in the treatment of chronic diarrhœa. He gives five drachms to two ounces daily, in milk. In phthisical patients, who had suffered with diarrhœa for three to five months, the results were marvellous. Obstinate constipation usually follows the administration of the powder. As the diarrhœa of phthisis is due to organic changes (intestinal ulceration), the diarrhœa soon recurs, in consequence of which the continued administration of the preparation in smaller doses becomes necessary. It is an important fact that the use of powdered talc permits of the administration of substances which would otherwise not be borne by tubercular patients. Thus they readily take milk, which ordinarily causes diarrhœa; and Debove has by this means been enabled to give some patients as much as an ounce and a half of oil daily, much to their benefit. Already on the second day after the administration of the powder the stools are no longer white. The lightness of the powder favors its rapid elimination by the intestinal canal.—*Wiener medizin. Presse*, July 1, 1888.

Tannin in Dilatation of the Stomach.—Dr. H. Boulland, thinking that tannin—which acts on the retractibility of the mucous membrane, and is at the same time absorbent and antiseptic—might be useful in dilatation of the stomach, has employed it in many cases with success. In cases in which constipation was present, Dr. Boulland administered doses of 10 centigrammes (1½ grains) instead of 20 centigrammes (3 grains). By this means the regularity of the bowels was not interfered with, and the dilatation decreased in proportions analogous to those obtained by washing out the stomach. In twenty days, the stomach was reduced nearly to its normal condition. At the same time, the patients took frequent but light meals, chiefly of pasty substances, and no starchy matter. When the dilatation is due to a tumor, tannin does not give better results than other methods. It diminishes mucous secretion, however, and renders the digestion less painful. Dr. Boulland has found the hemostatic properties of tannin equal to those of ergotin and perchloride of iron. In particular he has used it with success in many cases of epistaxis, when all other means had failed.—*British Medical Journal*, July 21, 1888.

Oil of Turpentine as a Hemostatic in Epistaxis.—In cases of obstinate epistaxis in which other means had failed, Dr. M. Eurye, of Budapest (*Orrosi Heti Szcuile*, 1887, 12), upon a recommendation in Billroth's *Surgery*, used tampons saturated with oil of turpentine, with surprisingly prompt success. In one case in which the bleeding had continued for eight days and resisted all internal and external measures, threatening acute anemia, the application of three tampons moistened with oil of turpentine at once permanently checked the hemorrhage. To prevent intense irritation of the nasal mucous membrane it might be well to dilute the oil.—*Medicin. Chirurg. Rundschau*, July 1, 1888, from *Wiener med. Bl.*, 1888, 13.

The Bacteriology of Yellow Fever.—Dr. Sternberg, who recently made to the President a report upon the yellow fever at Cuba, before returning home delivered a lecture

before the members of the Royal Academy of Sciences of Havana. There are considerable discrepancies between the results arrived at by Dr. Sternberg and those obtained by the Commissioner of the French Government, Dr. Gibier, which appeared in THE NEWS of last week. The whole subject appears to be fraught with considerable difficulty, and evidently requires a good deal more investigation for its proper elucidation.

In all ten necropsies made by Dr. Sternberg, he reserved for examination parts of the stomach and intestines, of the interior of the liver and kidneys, and also specimens of urine from the bladder and of blood from the heart. With these materials he reared cultures in meat-peptone jelly or agar-agar, and in some cases in solidified serum or peptonized broth.

In addition to the more common forms four other bacilli were found: α, from one and a half to three times as long as its breadth, with rounded ends, and occurring singly or in pairs. In its morphological aspects it appears to bear considerable resemblance to some common bacilli of putrefaction, but it differs from these in the appearance of its colonies in jelly. The deep colonies are lobulated and have a pale-brown color, and those which grow near the surface present a lobulated margin, which gives them the aspect of a rosette or of a flower with its petals open, like a daisy; β, shorter than α, possessing the property of end-staining in a more constant and marked manner; γ, a bacillus which liquefied jelly and developed a green pigment, probably the bacillus of green pus; and a bacillus which forms flat colonies of a glassy appearance with irregular borders and wrinkled in the interior, is also mentioned as requiring further study.

In eight out of ten cases the cultures from blood taken from the heart remained sterile; seven of the cultures from the urine, four of the cultures from the kidney, seven of the cultures from the liver were also sterile.

The bacillus α was found in one case in cultures from the blood, in one in those from the urine, in four in those from the kidney, in two in those from the liver, and in eight in those from the stomach and intestines. This bacillus Dr. Sternberg has not succeeded in obtaining from the digestive tract of other bodies, but he is not able to assert at present that it only occurs in yellow fever, much further investigation being needed to determine the question of its etiological relation to that disease.

Dr. Sternberg's experiments on animals having up to the present time yielded only contradictory results, he will have to repeat them before drawing any conclusions.

In the cultures from the kidney and the urine in the first case the α bacillus was associated with another bacillus resembling it. After a good deal of trouble he succeeded in separating this out and studying it in pure cultures. Dr. Sternberg does not now think that α is like the bacillus of Babes, as he was at first disposed to believe; it is more probable that β may be so. This forms pale-brown colonies in jelly, which have no lobulated margins like those which characterize the α colonies. The β colonies, too, grow more slowly, and in mixed cultures in jelly in Esmarch's tubes, the β colonies do not begin to appear until those of α have acquired a considerable size. The characters of β will have to be gone into more thoroughly at some future time.

In the cultures of the stomach and intestine a bacillus which liquefied jelly was obtained in three cases. This appeared to be identical with Dr. Gibier's bacillus. Dr. Sternberg thinks he might probably have met with this bacillus more frequently if he had used jelly instead of agar-agar in his earlier cases. This bacillus, which he designates as γ, is large and oval, with rounded extremities, and, like many other microörganisms, shows in highly colored preparations the property of end-staining. This, indeed, is common enough in old cultures of bacilli. There does not appear to be any reason for looking upon this as a spirillum, as Dr. Gibier is disposed to do. In Dr. Sternberg's cultures it has not presented the character which, the French Commissioner believes, points it out as the probable cause of the disease, no deposit of black pigment having been observed in any of the tubes—neither in cultures sown directly from those supplied by Dr. Gibier himself nor in those obtained by Dr. Sternberg from the intestinal contents.

In three cases portions of liver and kidney were preserved in the laboratory, wrapped in muslin or blotting-paper soaked in a one per cent. solution of bichloride of mercury. The examination of the interior of these fragments at the end of forty-eight hours demonstrated the existence of numerous and various microörganisms. In one case there was found in a specimen from the kidney a large micrococcus in tetrads, associated with a streptococcus and staphylococcus which liquefied jelly. With this exception, Dr. Sternberg has met with no microörganisms in any of the cultures from the interior of the body. On the other hand, in cultures from the surface he always found micrococci of various kind.—*Lancet*, July 21, 1888.

The Development of Gastric Cancer in the Cicatrix of the Round Ulcer.—FLATOW (*Inaug. Dissert.*, Munich, 1887) describes a case of gastric disorder in a female, aged twenty-six, from the symptoms of which the diagnosis of gastric ulcer was made. At her request, the patient left hospital uncured, to return after a few months. She manifested all the signs of gastric cancer and in twelve days died in collapse. The autopsy confirmed the diagnosis. At the pyloric extremity of the stomach, on the lesser curvature, there was a cancerous tumor, growing evidently from a distinct cicatrix, one and a half inches long and three-quarters of an inch wide. The statement of Hauser that cicatrized ulcers of the stomach dispose to the development of gastric cancer is strengthened by this observation. It also supports Virchow's view of the etiology of tumors—that they preferably arise at points exposed to frequent irritation.—*Centralbl. für klin. Med.*, July 7, 1888.

Cocaine in the Surgical Treatment of Hydrocele.—To diminish the pain caused by the injection of iodine M. ALEZAIS proposes the employment of cocaine as a local anæsthetic. The tunica vaginalis testis is punctured and its serous contents evacuated. An injection of a solution of cocaine, two and a half grains to the ounce of water, is then made into the cavity and permitted to remain a few minutes. This is followed by the injection of the ordinary solution of iodine, which causes no more pain than that of the contact of the fluid with the walls of the cavity. By the employment of this modification of the classical treatment of hydrocele, it becomes possible to substitute the pure tincture for the weak solution of iodine, at the same time increasing the dose of cocaine. —*Rev. Gén. de Clin. et de Thérap.*, July 5, 1888.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to The Medical News will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's address, No. 1004 Walnut St., Philadelphia.

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SATURDAY, AUGUST 11, 1888.

THE CÆSAREAN METHOD OF SÄNGER, AND THE CLAIMS TO PRIORITY.

No sooner is a new surgical method placed upon a sure basis by success than there is an effort made on the part of some one, to be perhaps followed by many others, to prove either that the operation was thought of long before, was tried at an earlier period by one or several other men, or that there is too great credit accorded for a new application of an old principle long taught. The Porro operation and the laparo-elytrotomy of Dr. T. G. Thomas had to pass through the fires of this form of criticism, and now we have to regret that repeated attempts are being made to show that before Dr. Sänger even published his new principles of uterine closure, other men, particularly in the United States, had practised the same methods of suturing with success.

It is true that the Sänger method of to-day is not precisely what it was in May, 1882, because resection of the muscularis and separation of the peritoneum are rarely required. Why? Because the object of these two steps—*i. e.*, the turning in of the peritoneum, so as to secure the serous surfaces in apposition, can be generally attained without them. The important steps of antisepsis—deep and superficial uterine suturing, multiplicity of stitches used in both rows and the application of the sero-serous method of closing the peritoneum, as in intestinal wounds, are all retained. The same ends are accomplished, although some of the means originally deemed essential have been found by experience not to be such, and the process has been wisely simplified. It is not generally known that Dr. Sänger was a successful Cæsarean operator before he wrote his first treatise upon the subject, and that it was the practical use of the uterine suture—old style—that led to the study which produced the improved method. Dr. Leopold's first operation was a Sänger, because he had become convinced that it possessed features which gave promise of success.

The claim that Dr. S. S. Lungren, of Toledo, Ohio, and Dr. Moses Baker, of Stockwell, Indiana, antedated in their operations the introduction of the method of Sänger by virtually adopting the same plan, rests entirely with other writers than themselves and requires a considerable departure from the language of their reports to establish. Other operators might much more justly be named as claimants than these two, both as to priority of time and close resemblance in technique.

Dr. Lungren says of his first operation, May 8, 1875: "Five silver wire sutures were now introduced to close the uterine wound. The sutures were entered about one-quarter of an inch from the edges of the incision and carried nearly through the substance of the uterus. Each one was twisted tightly twice only and the wire cut off close to the twist, which was then turned downward into the wound at right angles to the suture, care being taken to *approximate the edges of the peritoneum.*" There is certainly nothing peculiar in the manner of closure; a few deep sutures, no superficial ones, and the outer edges of the incision brought accurately edge to edge, as in an incised flesh-wound. Prof. D. Warren Brickell, of New Orleans, in 1867, closed the uterine wound in his Cæsarean case with six silver wire sutures in the same way and saved his patient.

In Dr. Moses Baker's operation, November 6, 1880, four sutures of carbolized silk were inserted in the same way, then tied and cut off near the knots. The woman and child were alive and well three years ago. If these were the same as the operation now called Sänger-Cæsarean, then Dr. Sänger cannot be said to have operated the thirteenth in order and two years and a half after Leopold, as Sänger performed a successful operation in August, 1880, or twenty-one months before Leopold's first case, using ten silk sutures, all deep, in the uterine wound, just as was done with silver wire in the Brickell and Lungren cases before his.

Quite a number of cases of uterine suturing might be quoted from American authors in which thread, silver and silk were used prior to the initial operation of Leopold, of Dresden, on May 25, 1882; but in no case was the discovery of Jobert de Lamballe (1824) and the method of intestinal closure of Lembert (1826) applied to the closing of the peritoneum in the uterine wound; in no case do we find proof that the serous surfaces of the peritoneal coat were placed in apposition (surface to surface, not edge to edge) in the uterine closure, or that more than ten sutures were inserted.

The nearest approximation to the Sänger method was made by Dr. R. O. Ingram, of Montezuma, Georgia, on September 18, 1874, when he inserted three rows of carbolized silk sutures in the uterine wound, viz., three deep, three half deep, and four peritoneal; but he did not welt in the peritoneum after the plan of Lembert in order to secure the most rapid union; his patient recovered.

We care little about the name of Sänger being given to the new Cæsarean operation, but we do care a great deal that he should not be robbed of the credit that is justly due him, first, in recommending two rows of multiple sutures to diminish individual tension and secure a tight closure; and second, the application of the intestinal suture and method of Lembert to the uterine peritoneum. This appears to be a simple matter, but why did not some one make the application years ago and thus save, as he has done, a large proportion of Cæsarean women? It is no discredit to him that he did not operate by his proposed method before Leopold. Dr. Sänger is a young man, is not a professor and has only a private hospital for the reception of patients. He has a large gynecological practice, but has not the opportunities for Cæsarean work that are possessed by those holding appointments to maternities, as Leopold, Zweifel, Breisky and others. It is, therefore, more to his credit that he stands in number of cases very near the head of the list of operators.

There have now been many more than a hundred of these operations, which are being performed at the rate of three per month, one-fifth of the whole belonging to our own country. We have gone through a trial of failures, the first five cases having been fatal; but have since done better, saving nine out of fifteen, several of the operations having been undertaken under conditions apt to render the result a fatal one for the woman, such as far-advanced cancer and Bright's disease. When the first chronological hundred can be arranged, it will probably be found that the mortality has been between twenty-five and thirty per cent. for all cases, favorable and unfavorable. We have a record of 36 cases for 1887, with 28 women saved, or nearly 78 per cent. Seven of the operations were American, with three deaths. Great Britain has at last entered into the trial, with two cases and two deaths: one woman had albuminuria, and the other, three fibroids in the line of incision, which became centres of purulent disintegration and prevented the union of the uterine wound. England appears to be peculiarly unsuccessful in all forms of Cæsarean work. Better subjects and a closer adherence to the German technique will, no doubt, produce more encouraging results. Her operators have very little faith in the Cæsarean section and strong prejudices against it, begotten by a mortality of about eighty per cent. in her past history. Of later years better work has been done, and we hope that the change will encourage her operators to make a more extensive trial of the new improvement.

Now that the operation is becoming less fatal in the United States, there is a growing disposition to depart from the technique of the Sänger method, by using fewer uterine sutures, by not turning in the peritoneum and by employing an uninterrupted suture instead of a number of Lembert stitches in its closure. We believe that every change has more or less risk in it and that the Lembert stitch, at short intervals, gives the best security against leakage. It may be true that union quickly takes place whether the peritoneal closure is made edge to edge or surface to surface; but after the successes of Leopold (eighteen saved out of twenty), we are not inclined to favor any departure from his example and go back to the earlier methods of uterine suturing. These departures are already creating trouble in making a true classification in certain German, French, English and American cases, when it is proposed to ascertain the mortality of the first hundred operations performed after what has been styled the Sänger method. Call the modern operation *New* or *Improved*, still it ought to have a certain established technique to be adhered to.

FOODS FOR INVALIDS AND INFANTS.

THE physician who is constantly prescribing foods for invalids and infants should be exceedingly cautious how he selects from the vast array of patent

foods upon the market, lest he unwittingly becomes a party to the ignorance, or deception and artifices of the vendors of some of these articles. Manufacturers are prone to vaunt the excellence of their special preparations and, often by the unwary aid of the chemist and the profession, are enabled to parade their advantages skilfully and effectively before the public. As Professor Leeds remarks: "Whatever characteristics in such foods are shown to be of most value, these characteristics the manufacturers claim that their special preparations possess; whatever constituents are of little value or indigestible, these constituents are asserted to be absent; whatever alimentary principles are easiest of digestion and most valuable in nutrition, these are asserted to be present." The physician owes it to himself and to his patients to sift these claims. He may not be able to conduct the analyses and experiments personally, in which case he should take advantage of the investigations of others well qualified to pursue them.

Some of the most useful inquiries conducted by State boards of health relate to this very subject. Special mention may be made of the recent investigations of Dr. Albert W. Leeds, the results of which are to be found in the last report of the Dairy Commissioner of New Jersey. These analyses and experiments relate to a number of well-known brands of infant foods and foods for invalids. Some of them are what they purport to be, but the greater portion are said to be misrepresentations, having constituents or proportions of constituents not given in the circulars accompanying them, or not having constituents or proportions of constituents represented as being present. In other words, their claims in important particulars are not supported by the results of chemical analysis. One article of which mention is frequently made contained over fifteen per cent. of alcohol, a fact which classes it among alcoholic beverages instead of "highly nutritious foods."

The practitioner who would intelligently and conscientiously prescribe proprietary foods would do well to consult the Report alluded to, rather than accept without reserve the laudatory and frequently deceptive circulars which accompany these articles; otherwise he may do injustice both to himself and to those who rely upon his skill and good judgment.

An Army Medical Board will convene in New York City, October 1, 1888, for the examination of such persons as may be properly invited to present themselves before it as candidates for appointment in the medical corps of the army. Application for an invitation should be addressed to the Secretary of War, stating date and place of birth; place and State of permanent residence, and accompanied by certificates, based on personal acquaintance, from at least two persons of repute, as to citizenship, character and moral habits; testimonials as to professional standing, from the professors of the medical college from which the applicant graduated, are also desirable. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, in evidence of which, his diploma must be submitted to the Board.

Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General of the U. S. Army, Washington, D. C.

By a Ministerial decree of July 16th, committees have been designated to organize the following International Congresses, to be held at Paris during the Universal Exposition of 1889. Congress of Dermatology and Syphilography; Congress of Hydrology and Climatology; Congress of Hygiene; Congress of Physiology; and Congress of Therapeutics.

The Emperor of Germany has conferred the Order of the Star and Cross of the House of Hohenzollern upon Prof. von Bergmann; the Order of the Red Eagle of the Second Class with the Oak Leaf upon Prof. Gerhardt; and the Order of the Red Eagle of the Second Class upon Prof. Schrötter. These decorations are supposed to indicate the views of the Emperor in reference to the medical aspects of the sad events in Germany of the past few months.

Prof. Hugo Ernst Heinrich Ruhle, Director of the Medical Clinic of Frederick William University of Bonn, died on July 11th, aged sixty-four years. He was born at Lieguitz and finished his studies at Berlin. In 1857 he was made professor extraordinary and director of the medical clinic at Breslau. In 1860 he was called to the University of Griefswald, remaining until 1864. From this time on he was associated with the University at Bonn.

Dr. Julius Ludwig Budge, Professor of Anatomy at the University of Griefswald, died on July 14th, aged seventy-seven years. Budge belonged to that group of investigators who have taken part in the advances which physiology and practical medicine

have made in the last decade. Among his important works were *Movements of the Iris*, which was awarded prizes by the Paris Academy of Medicine and the Brussels Academy of Medicine; *Investigations upon the Influence of the Central Nervous System upon the Movements of the Bladder*; and *The Course of the Bile Passages in the Liver*. Budge was educated at Marburg, Berlin and Würzburg and settled at Bonn, where he was made professor. He was made Professor of Anatomy and Physiology at Griefswald in 1856.

REVIEWS.

TRANSACTIONS OF THE NEW YORK STATE MEDICAL ASSOCIATION, FOR THE YEAR 1887. Volume IV. Edited by ALFRED L. CARROLL, M.D. 8vo., pp. 554. New York: J. H. Vail & Co., 1888.

THIS volume of *Transactions* contains numerous papers upon practical subjects well worth the attention of the profession. In addition, we find these discussions at length—upon "The Management of Compound Dislocation of the Ankle-joint;" "Typhoid Fever;" and "Placenta Prævia." The President, Dr. Isaac E. Taylor, of New York, contributes the illustrated article of the volume, upon "Lupus of the Cervix Uteri and Female Genitalia." The book is especially interesting for its "Memoirs of Dr. Alonzo Clark," an excellent picture of whom forms its frontispiece.

We have been especially interested in the discussion on "Placenta Prævia." The mechanism of placental separation and the causation of hemorrhage are clearly set forth by Dr. Harrison, who opened the discussion. Dr. Taylor stated the results of studies and demonstrations made in 1852 and subsequently, which he published in 1862, which proved the anatomical facts stated recently by Hofmeier, regarding the structure of the cervix uteri and its behavior during gestation and labor.

Dr. Taylor believes that the cervix remains distinct until labor; that the placenta is in the body and not the cervix uteri; and that hemorrhage when the placenta is prævia is caused by uterine diastole, and not systole. Dr. Taylor claims priority in the discovery of these facts, and we are not inclined to dispute his claim.

The pith of the discussion is in the statement of the treatment to be employed, by Drs. Thomas and Lusk. This is, briefly, after the seventh month, the induction of labor; preferably by bi-polar version, rupture of the membranes, deliberate extraction, using the fœtus as a tampon; Barnes's dilators and the hot douche, if needed, to secure dilatation.

The volume contains much valuable matter and reflects great credit upon the Association from which it emanates.

CORRESPONDENCE.

TREATMENT OF STRICTURE.

To the Editor of THE MEDICAL NEWS,

SIR: My attention has recently been called to an article in your issue of July 14th, entitled "The Rational Treatment of Stricture of the Male Urethra," by Dr. J. H. Girdner, in which a series of statements are made which are at variance with careful statistics and the published experience of many well-known authorities on this subject.

That the tightness of a stricture depends upon the *amount* of plastic connective tissue thrown out is not in accordance with either pathological research or clinical experience, for, as a matter of fact, the *amount* of plastic material at first usually encroaches but little on the urethral calibre, but it is its contraction that is responsible for the narrowing of the urethral lumen. Thus, we do not find tight strictures appearing immediately after inflammatory action has taken place—*i. e.*, the time at which the plastic exudate occurs—but years after, owing to its gradual contraction, and the contracting band may be found to consist of a *mere thread* of connective tissue.

In spite of long and careful statistics to the contrary,[1] the author gives his dictum that the majority of strictures occur in the bulbous and membranous portions of the urethra, an old error, due either to faulty methods or means of diagnosis or to limited opportunity for investigation. The explanation that these portions, being the most dependent, the gonorrhœal poison naturally gravitates to and remains in them, is scarcely logical, unless we consider that gravity has no effect upon the pendulous portion, or that these patients suffer from constant priapism.

Against the operation of internal urethrotomy he urges that a stricture cannot be cut internally, without, at the same time, "cutting some of the sound tissue in its neighborhood." An objection which might apply to most surgical operations and most certainly does in the case of external section, which he advocates in the same article.

The author, moreover, has evidently not coped with urethral antisepsis; in a very large number of these cases under my observation, both in private and hospital practice, I have never seen a serious accident due to septic injection. It is needless to have the wound "constantly bathed in urine," or to have urine come in contact with the wound at all, for by the proper use of the catheter, the urine may be kept from the cut surfaces for any length of time necessary to healing; and if the author finds that with his "best care" he cannot prevent the introduction of septic instruments, his methods of asepsis are indeed faulty. I would call his attention to the valuable work of Dr. A. G. Gerster, *Aseptic and Antiseptic Surgery*, p. 312. The experience of that author "extends over twenty-one cases, in which strictures were cut successfully from within; *no febrile or inflammatory complications were ever observed*;"[2] so much for sepsis.

In regard to deep strictures, the author very properly resorts to external section, claiming that this cures by the introduction of a wedge of *sound tissue* between the cut surfaces. It would be interesting to have him explain by what law of nature *sound tissue* is introduced between the surfaces in the repair of a wound in the urethra made from the outside and *contracting connective* tissue between the surfaces of a wound made in the opposite direction. Both clinical and pathological[3] investigation

[1] Otis: Stricture of the Male Urethra, its Radical Cure, p. 97.

[2] Italics my own.—W. K. O.

[3] See report of Dr. Stuart Eldridge, Otis on Stricture, Appendix.

have shown that healthy tissue is deposited in both cases.

In regard to the author's method of treating stricture of the penile portion, it is by no means novel and has, to my knowledge, been used by various surgeons with a certain amount of success in *recent* deposits of lymph along the urethral canal. Clinical experience, however, which overrides theory, however plausible on the surface, proves that, so far as organized strictures are concerned, the procedure is wholly inefficient to effect a cure.

Very sincerely yours,

William K. Otis.

5 West 50th Street, New York, July 20, 1888.

NEWS ITEMS.

The New Quarantine Act.—The following is the text of the quarantine act which passed the Senate May 3, 1888, passed the House July 23, 1888, and was approved by the President August 2, 1888. Its provisions go into immediate effect, and the quarantine buildings will be erected as soon as practicable. Steps will be immediately taken to secure sites for the quarantines not now on Government land:

An Act to perfect the quarantine service of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That whenever any person shall trespass upon the grounds belonging to any quarantine reservation, or whenever any person, master, pilot or owner of a vessel entering any port of the United States, shall so enter in violation of section one of an act entitled "An act to prevent the introduction of contagious or infectious diseases into the United States," approved April twenty-ninth, eighteen hundred and seventy-eight, or in violation of the quarantine regulations framed under said act, such person, trespassing, or such master, pilot or other person in command of a vessel shall, upon conviction thereof, pay a fine of not more than three hundred dollars, or be sentenced to imprisonment for a period of not more than thirty days, or shall be punished by both fine and imprisonment, at the discretion of the court. And it shall be the duty of the United States attorney in the district where the misdemeanor shall have been committed to take immediate cognizance of the offence, upon report made to him by any medical officer of the Marine-Hospital Service, or by any officer of the customs service, or by any State officer acting under authority of section five of said act.

Sec. 2. That as soon after the passage of this act as practicable, the Secretary of the Treasury shall cause to be established, in addition to the quarantine established by the act approved March fifth, eighteen hundred and eighty-eight, quarantine stations, as follows: One at the mouth of the Delaware Bay; one near Cape Charles, at the entrance of the Chesapeake Bay; one on the Georgia coast; one at or near Key West; one in San Diego Harbor; one in San Francisco Harbor; and one at or near Port Townsend, at the entrance to Puget Sound; and the said quarantine stations, when so established, shall be conducted by the Marine-Hospital Service under regulations framed in accordance with the act of April twenty-ninth, eighteen hundred and seventy-eight.

Sec. 3. That there are appropriated for the purposes of this act the following sums, out of any money in the Treasury not otherwise appropriated, for the construction, equipment and necessary expenses of maintaining the same for the fiscal year ending June thirtieth, eighteen hundred and eighty-nine.

For the Delaware Breakwater quarantine: Construction of disinfecting machinery, steam tug, warehouse, officers' quarters and expenses of maintenance for the fiscal year eighteen hundred and eighty-nine, seventy-five thousand dollars.

For the quarantine station near Cape Charles, Virginia: For the purchase of site, construction of wharf, repair of present hospital buildings and officers' quarters, disinfecting machinery, steam-tug, expenses of maintenance for the year eighteen hundred and eighty-nine, one hundred and twelve thousand dollars.

For the South Atlantic Station (Sapelo Sound): Construction of disinfecting machinery, warehouse, wharf, small boats and expenses of maintenance for the year eighteen hundred and eighty-nine, thirty-eight thousand five hundred dollars.

For the quarantine near Key West: Purchase of site, construction of disinfecting machinery, warehouse, small boats, steam-tug, hospital buildings and officers' quarters, expenses of maintenance for the year eighteen hundsed and eighty-nine, eighty-eight thousand dollars.

For the Gulf quarantine (formerly Ship Island), provided for by the act of March fifth, eighteen hundred and eighty-eight, in addition to the amount appropriated by the act approved March fifth, eighteen hundred and eighty-eight: For the expenses for the year ending June thirtieth, eighteen hundred and eighty-nine, fifteen thousand dollars.

Quarantine station, San Diego Harbor, California: For the purchase of site and the construction of disinfecting machinery, warehouse, small boats, hospital buildings, officers' quarters, and for expenses of maintenance for eighteen hundred and eighty-nine, fifty-five thousand five hundred dollars.

For the quarantine station at San Francisco, California: Hospital buildings and officers' quarters, disinfecting machinery, warehouse and wharf, steam-tug, small boats, expenses for the fiscal year eighteen hundred and eighty-nine, one hundred and three thousand dollars.

For the quarantine station at Port Townsend: For the purchase of site, construction of disinfecting machinery, warehouse, small boats, hospital buildings and officers' quarters, for expenses of maintenance for the fiscal year eighteen hundred and eighty-nine, fifty-five thousand five hundred dollars.

Disinfecting Clothes by Steam.—According to the New York *Tribune*, one of the busiest places in the city, in case of a serious epidemic of contagion, would be the ground floor of the Reception Hospital, in East Sixteenth Street, for there is the new disinfecting apparatus of the Health Department. Experiments to ascertain the most practical method for using heat in the destruction of disease germs have been conducted there since last winter. A tank of boiler iron, big enough for a dozen men to walk about in at one time, and having a strong iron door at each end, is the chief part of the apparatus. It is connected with a furnace and steam boiler by means of

pipes. The coils of pipes are close together inside the tank, and there is an arrangement of stop-cocks by which an operator can fill the tank with steam or dry heat at will. Dry air has been heated to a temperature of nearly 300° inside the tank.

When the apparatus was built the Health Board expected to be able to disinfect clothing and bedding by dry heat. Dr. Cyrus Edson knew that work of that kind had been done in Europe and he was anxious to make a trial. The Health Board has been making liquid disinfectants in the big room where the tank and boiler were set up. From a trough, in which water was passed over copperas, a strong solution of sulphate of iron was obtained, but it was used chiefly for disinfecting street gutters and the back yards of crowded tenement houses. A vile-smelling liquid, made by mixing vitriol with dead oil, was used in some tenement houses where the inmates thought that a disinfectant must smell strong to be effective. For the fumigation of rooms in which there have been cases of contagious disease the sanitary officials have used burning sulphur. It was the rule to burn up the bedding and clothing which had been in contact with smallpox or typhus-fever patients.

Dr. Edson and the Health Commissioners believed that the spread of diphtheria and of scarlet fever in the city might be checked if the department had means for the better disinfection of clothing and bedding. It was said that sulphur fumigation could not be depended on for the destruction of the germs of either disease in the clothing of patients and attendants. At the same time the Health Board could not compel the burning of bedding and clothing in the hundreds of cases of diphtheria and scarlet fever reported every month. Then there was the possibility that Asiatic cholera might come to the city and that the disinfection of clothing on a large scale might be imperative. It was believed that infected clothing could be placed in the new tank, subjected to dry heat for an hour or so, and then removed uninjured and free from the germs of disease. Experiments were begun to ascertain how many degrees of heat could be employed to kill the germs and yet not destroy the clothes. The result has been a change from dry heat to steam.

It was found that a few strong fabrics, which were placed in the tank dry and subjected to a dry heat of about 250°, came out purified and comparatively uninjured. An expensive carpet, belonging to one of Commissioner Bryant's friends, was ruined by exposure to 280° of heat in the tank for two hours. Another carpet, which had been left out in the blizzard and was partly frozen when it was placed in the tank, was subjected to a like test. Part of the carpet was burned up, while another portion was still frozen when it was removed from the tank. Subsequent experiments have shown that a roll of wet cloth may be subjected to intense dry heat several hours without being disinfected. It is believed that an envelope of steam protects the inner part of the roll from the heat.

By injecting live steam into the tank, Dr. Edson's assistants have been able to disinfect clothing and bedding at a temperature of about 160°, and the goods come out of the tank unhurt, except that the colors in some kinds of cloth are effaced or badly mixed. The disinfection by steam is rapid and satisfactory. Iron cages are being prepared for the collection and return of bedding and clothing. Each cage has a lock to it, and the owners of clothing can keep the key while the goods are being disinfected. The work is done by the Health Department, free of charge.

The Congress of American Physicians and Surgeons, Washington, September 18th, 19th and 20th.

The American Gynecological Society announces the following preliminary programme:

On the New Cæsarean Section, by William T. Lusk, M.D., of New York.

The Cause and Treatment of Urethrocele, by Thomas Addis Emmett, M.D., of New York.

Ureteritis, its Diagnosis and Symptomatology, by Howard A. Kelly, M.D., of Philadelphia.

High Amputation of the Uterus for Cancer, by Thaddeus A. Reamy, M.D., of Cincinnati.

The Technique of Vaginal Hysterectomy, by E. C. Dudley, M.D., of Chicago.

A Case of Rupture of the Uterus in Labor at Term, the Child born alive, the Mother subsequently having a full-term Child in Normal Labor, by C. M. Green, M.D., of Boston.

The President's Address, by Robert Battey, M.D., of Rome, Ga.

The Etiology, Pathology and Treatment of Anteflexion of the Uterus, by T. Gaillard Thomas, M.D., of New York.

Some Cases of Nerve Prostration in which the Remote Effects of Anæsthesia by Ether were bad, by William Goodell, M.D., of Philadelphia.

Cystokolpocele complicating Labor and Pregnancy—a supplemental contribution, by Samuel C. Busey, M.D., of Washington.

Adenoma of the Fundus Uteri, by James R. Chadwick, M.D., of Boston.

A Case of Extrauterine Pregnancy, by B. F. Baer, M.D., of Philadelphia.

On the Treatment of Extrauterine Pregnancy, by Joseph E. Janvrin, M.D., of New York.

On the Treatment of Pelvic Abscess, by R. Stansbury Sutton, M.D., of Pittsburg.

A Case of Subinvolution cured by the Removal of the Appendages, by Howard A. Kelly, M.D., of Philadelphia.

Some Points learned from an Experience of Thirty-four Ovarian Operation, with but one Death, by Joseph Tabor Johnson, M.D., of Washington.

The American Neurological Association will hold a discussion on "The Relation of Renal Diseases to Diseases of the Nervous System," "Cases of Trauma, wtih well-defined Lesions of the Central Nervous System" and on "Muscular Dystrophies."

The following papers will be read:

Post-hemiplegic Disturbances of Motion in Children, by Philip C. Knapp, M.D., of Boston.

Heat Centres in Man, by Isaac Ott, M.D., of Easton.

The "Ape-fissure," so-called, in Man, by Burt G. Wilder, M.D., of Ithaca.

Clinical Report of Cases of Epilepsy following Cerebral Hemiplegia, by E. D. Fisher, M.D., of New York.

The Relation of Urinary Changes to Functional Nervous Diseases, by C. L. Dana, M.D., of New York.

The Differential Diagnosis between General Paresis, certain forms of Intracranial Syphilis and the Cerebral

Type of Disseminated Sclerosis, by Landon Carter Gray, M.D., of New York.

Report of a Case of Primary Lateral Sclerosis, with late Cerebral Symptoms, due to Cyst of the Floor of the Lateral Ventricle, with Microscopic Report, by Wharton Sinkler, M.D., of Philadelphia.

A Case of an Unusual Form of Myxœdema, illustrated by Photographs and Sections of Excised Tissues, by F. X. Dercum, M.D., of Philadelphia.

A Case of Alcoholic Multiple Neuritis, with Sections, by James Hendrie Lloyd, M.D., of Philadelphia.

Observations and Experiments respecting the Pathology of Neuritis, by James J. Putnam, M.D., of Boston. Dr. C. K. Mills and others will demonstrate specimens.

Myositis Subacuta Progressiva, by George W. Jacoby, M.D., of New York.

The Differential Diagnosis between Peripheral Neuritis and those Cerebral Affections with which it is most likely to be Confounded, by E. C. Spitzka, M.D., of New York.

Nervous Affections following Injury, by Philip C. Knapp, M.D., of Boston.

Hereditary Chorea, by Wharton Sinkler, M.D., of Philadelphia.

Aneurism of an Anomalous Artery causing Anteroposterior Division of the Optic Chiasm and Bitemporal Hemianopsia, by S. Weir Mitchell, M.D., of Philadelphia. To be read by F. X. Dercum, of Philadelphia.

A Case of Focal Epilepsy with Observations on Trephining, by James Hendrie Lloyd, M.D., of Philadelphia.

The preliminary report of the Committee on Encephalic Nomenclature will be read by Burt G. Wilder, M.D., Chairman, of Ithaca.

The Southern Surgical and Gynecological Association.—The following preliminary announcement has been issued of the papers to be read at the first annual meeting of this Association, to be held at Birmingham, Alabama, September 11th, 12th and 13th next:

The President's Annual Address, by W. D. Haggard, M.D., of Nashville, Tenn.

The Annual Oration, by W. F. Hyer, M.D., of Holly Springs, Miss.

Floating Kidney, with Vicarious Menstruation, by DeSaussure Ford, M.D., of Augusta, Ga.

Gastrostomy, by W. B. Rogers, M.D., of Memphis, Tenn.

The Medical Treatment of Fibroid Tumors of the Uterus, by Bedford Brown, M.D., of Alexandria, Va.

Indications for Operative Interference in Cerebral Troubles, by T. O. Summers, M.D., of Jacksonville, Fla.

A Case of Tubal Pregnancy, Presenting Interesting Medico-Legal Relations, by E. P. Sale, M.D., of Aberdeen, Miss.

Superinvolution of the Uterus following Trachelorrhaphy, by Virgil O. Hardon, M.D., of Atlanta, Ga.

I. Dermoid Cysts of the Coccygeal Region, and

II. Electrolysis in Gynecology and Surgery, by E. J. Beall, M.D., of Fort Worth, Texas.

Alexander's Operation, by W. L. Nichol, M.D., of Nashville, Tenn.

Hysterectomy in Cancer of the Uterus, by W. H. Wathen, M.D., of Louisville, Ky.

The Extravagancies and Impracticable Requirements of Modern Antiseptic Surgery, so far as the Country Practitioner is Concerned, by J. M. Taylor, M.D., of Corinth, Miss.

Treatment of Fractures with Plaster-of-Paris Splints, by W. F. Westmoreland, Jr., M.D., of Atlanta, Ga.

The Present Status of Electro-Therapeutics in Gynecology, by J. R. Buist, M.D., of Nashville, Tenn.

Antiseptics in Surgery and Gynecology, by F. T. Meriwether, M.D., of Asheville, N. C.

The Attitude of Removal of Uterine Appendages for the Cure of the Convulsive Neuroses, by W. Locke Chew, M.D., of Birmingham, Ala.

Interesting Cases of Surgery, by R. M. Cunningham, M.D., of Pratt Mines, Ala.

My Antiseptic Bags, or Practical Aseptic Surgery, by J. W. Long, M.D., of Randleman, N. C.

The New Departure in Uterine Therapeutics—the Dry Method, by T. A. Means, M.D., of Montgomery, Ala.

A Study of the Various Methods of Treatment of Laceration of the Perineum and Rectocele, with Report of Cases, by J. H. Blanks, M.D., of Meridian, Miss.

Report of a Case of Spinal Concussion, by John R. Page, M.D., of Birmingham, Ala.

Fractures of the Forearm, by John Brownrigg, M.D., of Columbus, Miss.

Some Practical Thoughts in Surgery, by James Guild, M.D., of Tuscaloosa, Ala.

Perineal Lacerations, by M. C. Baldridge, M.D., of Huntsville, Ala.

Electrolysis in the Treatment of Urethral Strictures, by S. M. Hogan, M.D., of Union Springs, Ala.

The Field and Limitation of Laparotomy, by I. S. Stone, M.D., of Lincoln, Va.

Operative Procedures in Hypertrophy of the Prostate, by R. D. Webb, M.D., of Birmingham, Ala.

Discussion on Abdominal Surgery, by Drs. John Herbert Claiborne, Duncan Eve, Paul F. Eve, W. T. Briggs and others.

The Association will convene in the hall of the Young Men's Christian Association, at 10 o'clock A.M., each day.

A Gift to the New York Pathological Society.—At a late meeting of the New York Pathological Society, Dr. G. C. Freeborn stated that Dr. J. M. DaCosta, of Philadelphia, the Middleton-Goldsmith lecturer for the present year, had declined to receive any compensation for his lecture and had requested the Society to apply the amount ($100) to any purpose which might seem desirable. The matter had been referred to the trustees, and they had decided that the most fitting tribute to Dr. DaCosta's generosity would be to purchase some microscopes for the use of the Society, and had requested the speaker to procure them. He had succeeded in getting two microscopes, one having an Abbé condenser and a one-fifth objective, the other having no condenser and being of a low power. The microscopes would be engraved with an inscription to the effect that they were the gift of Dr. DaCosta.—*Medical Record*, August 4, 1888.

Pasteur's Honors.—A calculation has been made of the number of decorations with which M. Pasteur has been honored by various Courts and States throughout the world. It seems that he is the owner of fifteen orders, of which only one is French. In addition he is an honorary doctor of all the great Universities of Europe, and a

member of eighty-three learned societies. Such a record as this is proof of the extent to which his work has been appreciated.

It has probably fallen to the lot of few *savants* to experience during their lifetime so full a recognition of their scientific labors as has occurred to M. Pasteur. The rewards of science are often tardy in their appearance, and their bestowal frequently comes too late in the day to be of any actual service. When, therefore, an exception to the rule occurs it is worthy of notice.—*Medical Press*, July 18, 1888.

The Value of Vaccination.—Zurich, according to a daily contemporary, is beginning to suffer from the effects of neglect of vaccination. Until 1883 a compulsory vaccination law was in force, but in that year it was repealed, the success of the anti-vaccinationists depending, it is said, upon the fact that not a single case of smallpox occurred in 1882. But in 1883, in every 1000 deaths, 2 were caused by smallpox; in 1884 there were 3 in every 1000; in 1885, 17; and in the first quarter of 1886 there were 85 deaths. While Europe is exhibiting folly by showing in some localities opposition to vaccination, Japan is deriving benefits from the recognition of its value. Nagasaki possesses a governor, named Kusaka, who is bent upon ridding the town of the diseases which formerly infested it. By means of a system of compulsory vaccination, rigorously enforced by the governor, smallpox, long a familiar scourge in the old town, has been practically stamped out.

Germany, too, is showing the effects of revaccination, and hitherto the freedom of German towns from smallpox has contrasted in a marked degree with a larger prevalence of this disease in other European towns where revaccination is not enforced. Probably the outcome of the experience of the present generation will be the enforcement of revaccination in the majority of civilized countries.—*Lancet*, July 21, 1888.

Recent Elections at the Royal Society.—Prof. Edmond Becquerel, of Paris; Prof. Hermann Kopp, of Heidelberg; Prof. Ed. F. W. Pflüger, of Bonn; and Prof. Julius Sachs, of Würzburg, have been elected foreign members of the Royal Society of London; the first, for his investigations into "The Influence of Light upon Matter, with Particular Reference to Phosphorescence;" the second, for his "Studies of Atomic Volumes and Boiling Points;" the third, for "Investigations in Physiology, with Especial Reference to the Irritability of Nerves, to Respiration and to Animal Heat;" and the last, for his "Investigations in Botany, particularly in Plant Physiology."

Adulteration of Tea.—A suit at law at Moscow, and various investigations, disclose that tea is being shamelessly adulterated. Of forty-four samples which were officially analyzed, four consisted of a mixture of tea and a certain kind of grass, four of the grass alone, and five of tea which had already once been used. In Moscow the police have found a number of barrels of sweepings intended for admixture with tea.—*Deutsche medizin. Wochenschr.*, June 28, 1888.

Liquid Paraffin in Cod-liver Oil.—It is now also reported from Russia that much of the cod-liver oil there has been adulterated with liquid paraffin, in some instances with as much as fifty per cent. Physically the adulterated oil cannot be distinguished from the pure.—*Pharmaceutical Record*, June 15, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 7 TO AUGUST 13, 1888.

KOERPER, EGON A., *Major and Surgeon* (U. S. Army).—Relieved from duty at Fort Keogh, Montana Territory, and ordered to duty at Fort Walla Walla, Washington Territory.—Par. 5, *S O. 175, A. G. O.*, July 30, 1888.

DEWITT, CALVIN, *Major and Surgeon* (U. S. Army).—Relieved from duty at Fort Sully, Dakota Territory, and ordered to duty at Fort Missoula, Montana Territory.—Par. 5, *S. O. 175, A. G. O.*, July 30, 1888.

CORSON, JOSEPH K., *Assistant Surgeon* (U. S. Army).—Leave of absence extended one month.—Par. 17, *S. O. 178, A. G. O*, August 2, 1888.

HARVEY, PHILIP F., *Captain and Assistant Surgeon* (U. S. Army).—Relieved from duty as assistant to the attending surgeon at Washington, D. C., and ordered to duty at Fort Keogh, Montana Territory.—Par. 5, *S. O 175, A. G. O.*, July 30, 1888.

MERRILL, JAMES C., *Assistant Surgeon* (U. S. Army)—Granted one month's leave of absence from August 2, 1888.—Par. 7, *S. O. 178, A. G. O.*, August 2, 1888.

GARDINER, JOHN DEB W., *Assistant Surgeon* (U. S. Army).—Will, on the expiration of his present sick leave of absence, report in person to the commanding officer at Fort Leavenworth, Kansas, for duty.—Par. 4, *S.O. 178, A. G. O.*, August 2, 1888.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon* (U. S. Army)—Granted leave of absence for one month, to take effect on being relieved from duty at Fort Randall, Dakota Territory.—Par. 4, *S. O. 177, A. G. O.*, August 1, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING AUGUST 4, 1888.

HUDSON, A., *Medical Inspector*—Detached from the "Trenton" and ordered home.

WHITE, C. H., *Surgeon.*—Ordered to the "Trenton," via Panama.

JARVIS, JOHN F., *Assistant Surgeon.*—Ordered to the Receiving Ship "Franklin."

BATES, N. L., *Medical Inspector.*—Detached from the "Richmond," and ordered to the "Pensacola."

ANDERSON, FRANK, *Passed Assistant Surgeon*—Detached from the "Richmond," and ordered to the "Pensacola."

KITE, ISAAC W., *Assistant Surgeon.*—Detached from the "Richmond," and ordered to the "Pensacola."

JONES, W. H., *Surgeon.*—Detached from the "Pensacola," and ordered to the "Richmond."

STONE, E. P., *Assistant Surgeon.*—Detached from the "Pensacola," and ordered to the "Richmond."

MCCORMICK, A. M. D., *Assistant Surgeon.*—Ordered to special duty in the Bureau of Medicine and Surgery.

WIEBER, F. W. F., *Assistant Surgeon*—Reports arrival home, having been detached from the "Vandalia."

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, AUGUST 18, 1888. NO. 7.

ORIGINAL LECTURES.

ON THE SURGERY OF THE BRAIN AND SPINAL CORD.

An Address delivered before the British Medical Association, Glasgow, August 9, 1888.

BY WILLIAM MACEWEN, M.D., F.R.C.S.,
SURGEON TO AND LECTURER ON SURGERY AT THE GLASGOW ROYAL INFIRMARY.

MR. PRESIDENT AND GENTLEMEN: Allow me to thank you for the exceptional honor you have conferred upon me by inviting me to address the British Medical Association on my "Recent Investigations in Surgery." It would have been more in harmony with my own feelings to bring before such a meeting the work of others, but this the form of invitation explicitly precludes. From among the various subjects which have engaged my attention it would have been difficult for me to single out one as especially worthy of notice. Fortunately I was so far relieved from that decision by receiving a very direct hint from one whose position in the Association demands respect. In obedience to that expressed wish I now venture to address you on the "Surgery of the Brain and Spinal Cord," a subject which has been of much interest to me, and which I hope may not prove uninteresting to you. In doing so it is necessary to premise, in the briefest possible form, the history of the evolution of cerebral surgery.

THE SURGERY OF THE HEAD IN THE PAST.

Lesions of the head have at all times held a prominent place in the annals of surgery; much has been done by surgeons before our day to advance the healing art as applied to this particular region. Their efforts were, however, chiefly directed to the superficial parts, the skull and its membranes, and were exclusively confined to the results of injury. Their operations were simple, undertaken for the most part upon the primitive evidence of direct visual and tactile observation. There is no reference made by them to cerebral surgery, as it is now known. The brain, whose function was at that time little understood, inspired fear: it was intimately associated with the seat of life, it was the mysterious dome of thought, it gave lodgement in its recesses to the soul, and was surrounded by all the mysticism which a highly speculative philosophy inculcated. Although surgeons did not share the popular belief that to touch the brain was to induce certain death, yet they had just grounds for concluding that to them it was practically inviolable. It was no want of boldness or lack of manipulative dexterity, in which, indeed, they greatly excelled, that determined this reluctance in dealing with brain lesions. *Post-mortem* examination revealed the fact that many cerebral lesions could have been easily reached had the surgeon only known during life at what particular part they had been situated. There were two formidable barriers to the advance of surgery in this region—first, the fact that the majority of intracranial operations were attended by inflammatory action, which so often prove fatal as to cause surgeons to shun active interference; and secondly, the brain was a dark continent, in which they could descry neither path nor guide capable of leading them to a particular diseased area, and did they attempt to reach it, it could only be by groping in the dark. Therefore, they were constrained to confine their efforts to traumatic lesions, and of these to such as afforded external indications of their presence, and which called out clamantly for relief. From the days of Pott to our own, there seemed to be a growing conviction, not only of the impotence, but of the positive harmfulness of active interference, so that the trephine was regarded as an almost obsolete instrument. Yet surgery was fully abreast of the physiology of the day. Such was the state of cranial surgery till 1870.

TWO FACTORS NECESSARY FOR THE INTRODUCTION OF CEREBRAL SURGERY.

However wishful one might be to extend the sphere of surgery to the brain, it was necessary first to adopt means whereby immunity from the inflammation which so constantly attended brain lesions could be secured, and secondly, to endeavor to gain a better physiological knowledge, in the hope that light might be shed upon the localization of cerebral lesions. In the wards of the Glasgow Royal Infirmary, Lister had formulated the theory and wrought out the practice of the antiseptic treatment of wounds, and already much had been done to dissipate the fears of surgeons regarding operations practised on other parts of the body. Experience gained by me showed that not only compound fractures of the skull, but large osseous defects in the cranial vault, accompanied by extensive loss of cerebral substance, were quite amenable to treatment, exhibiting no tendency to inflammatory action, as long as the tissues were preserved aseptic. When this held true of the rough and often septic lesions produced by machinery accidents, how much surer would well planned and carefully executed operations be? This conclusion was subsequently amply confirmed by the results of operations undertaken by me for the relief of injury in which the brain had to be exposed, and from which detached portions of it had to be removed. In such instances no inflammatory phenomena interrupted the even course of healing. A striking feature of these wounds of and operations upon the brain was the absence of false *hernia cerebri*, which had hitherto formed such a conspicuous complication of brain lesions in man, and which had so often marred the success of physiological experiments by extending the zone of irritation and by the fatal results which ensued. It was thus manifest that inflammation arising from exposure of, and operations upon the cerebrum, could be obviated under aseptic conditions.

Meanwhile many workers had been sedulously endeavoring to unravel the intricate and complex questions relating to the structure and functions of the brain. Previously the cerebrum was supposed to perform its function as a whole, in the same way as the liver, heart and kidneys perform theirs, there being no differentiation of function. Broca, in 1861, from observation on human pathology, isolated a particular limited area as the seat of the faculty of articulate language. This very important investigation foreshadowed the localization of function in other cortical centres, for if the existence of a definite function confined to an isolated area were admitted, then the question arose, how many other centres with specialized functions might there be? Broca's discovery was thoroughly iconoclastic, it shook the notion entertained regarding the unity of brain function to its foundation, it awakened thought and made men explore anew, with critical eyes, fields which previous investigators were supposed to have exhausted. Dr. Alexander Robertson, of Glasgow, suggested, in 1866, that there were separate sets of fibres for the conveyance of special motor impulses from the cortex. Hughlings Jackson, in 1869, stated that there were many limited areas on the brain connected with separated and distinctive functions, founding his opinion, not on speculative deductions, but on clinical experience, and on the direct observation of pathological facts. The inception of the idea that there was a portion of the brain whose function was related to motion was treated with extreme scepticism, and the suggestion was likely to have long remained a speculative question had it not been for the advent of another and more direct mode of examination. This new departure consisted in the performance of experiments upon the lower animals by Fritsch and Hitzig, who, in 1870, published an account of their observations. They demonstrated the existence of a series of circumscribed areas on the surface of certain of the cerebral convolutions, the electrical stimulation of which caused, on the opposite side of the body, coördinated movement in distinct groups of muscles. These were momentous facts, destined to revolutionize former ideas of cerebral function. But their full force and significance were not recognized, in this country at least, until Ferrier's observations on the brains of animals, undertaken to put to an experimental proof the views entertained by Hughlings Jackson, were published in 1873. Then the mind of the physiological world was fairly awakened. The suggestions of Hughlings Jackson, on the motor cortex, became crystallized. Another link in the unity of the plan of creation was manifest, as even in the higher and more complex brain of man parts existed whose function found homologous expression in that of the lower animals.

THE INITIAL HISTORY OF CEREBRAL SURGERY.

This extended physiological knowledge enabled cerebral lesions to be more accurately localized, while my experience showed by preserving aseptic the parts operated on surgical interference with the brain could be robbed of its chief danger.

I. *Case in which the symptoms of focal cerebral disease led to diagnosis of lesion in Broca's lobe, 1876.*—While in possession of this knowledge a case of cerebral abscess presented itself to me in July, 1876. The general symptoms of this affection were clearly manifest. A cicatrix on the forehead marked the site of an injury under which the skull was bare. Had this cicatrix been taken as a guide to the localization of the abscess and an operation performed there, no abscess would have been found. But other phenomena were exhibited which enabled its seat to be definitely recognized. A convulsion commenced on the right side and gradually involved the whole body, accompanied by loss of consciousness. On its cessation absolute hemiplegia of the right side was present and remained for two hours, during which the patient was aphasic. Both these phenomena became much less marked at the end of this period. From these symptoms the abscess was diagnosed to be situated in the immediate vicinity of Broca's lobe. It was evident that the whole of the base of the left third frontal was not involved in a destructive lesion, otherwise the aphasia would have persisted for a much longer period, and it was probable that Broca's area had become involved in the inflammatory zone surrounding the abscess. Trusting to these localizing symptoms, it was proposed to open the abscess aseptically by exposing Broca's lobe. Unfortunately, the result of a consultation was decidedly to negative this proposal. The parents then refused consent, notwithstanding the assumption by myself of the sole responsibility of advising and performing the operation. Thirty-six hours afterward the convulsions returned and persisted until a fatal issue ensued. After death the friends acquiesced in the proposal to have the operation performed, just as it would have been, had permission to do so been granted, during life. The skull was trephined, the brain exposed and an instrument was introduced through the third frontal convolution for half an inch, when pus flowed through the incision, proving the accuracy of the diagnosis, and giving poignancy to the regret that the operation had not been permitted during life. The abscess, about the size of a pigeon's egg, was situated in the white matter of the basis of the second and third frontal convolutions. The blade of the bistoury, which had been left *in situ* after insertion through the trephine opening, was found to have penetrated its outer wall. The congested zone in the periphery of the abscess extended from the anterior horn of the lateral ventricle to the cortex at the base of the second, but especially that of the third, left frontal convolution. Here the precise spot in the brain which the abscess occupied was accurately determined from the localizing phenomena induced by the focal lesion, which were trusted as indicating its position, though pointing to a different part of the brain from that which would have been selected had the seat of injury been accepted as a guide. The operation showed how easily the pus could have been evacuated, though the unfortunate refusal to allow it to take place during life leaves uncertain the ultimate issue; but, judging from my subsequent experience, worse cases have recovered after operation.

II. *Case in which motor phenomena were the sole guides to the cerebral lesion, 1879.*—In 1879 a case with definitely localizing motor symptoms was seen by me, occurring in a boy who had a fall six days previously, which occasioned some slight bruising about the face and head, accompanied by a shade of mental obscuration. At the termination of forty-eight hours he was so well that his parents could with difficulty be dissuaded from allowing him to rise from bed. On the sixth day he had a series of convulsions, the twitchings beginning in the left side of the face, gradually involving the left arm and subsequently the left leg, during which consciousness was preserved. Paresis of these parts remained, though sensation was unimpaired. On the following day there was a renewal of the convulsions, the parts being affected in the same order, but the convulsions persisted, and finally became general, with loss of consciousness. Those motor phenomena indicated a lesion on the right side of the brain, pronounced at the middle and lower portion of the ascending convolutions, as the face and

arm centres were the first to show evidence of stimulation. The lesion was of an irritative nature, such as might be occasioned by a spiculum of bone driven into the brain, or by a degree of pressure exercised on its surface. It was clearly not destructive, such as might be occasioned by severe cerebral contusion. Dr. Alexander Robertson was asked to see the case, and agreed with me that the motor symptoms presented a sufficiently clear guide to the localization of the lesion in the lower part of the fissure of Rolando. It was therefore resolved to expose that portion of the brain. As a preliminary the head was shaven, when a scarcely preceptible irregularity was detected in the cranial vault near the coronal suture. When the skull was exposed, a fissure was discovered running across the coronal suture. Trephining was performed at a point slightly behind the auriculo-bregmatic line, and midway between the external auditory meatus and the vertex. This point *happened* to correspond to the posterior extremity of the fissured fracture. There was no blood between the dura mater and the skull, but the dura had a very dark color. This membrane was opened, and gave vent to two ounces of fluid and coagulated blood contained in the subdural cavity. The operation was conducted aseptically, and the patient made an uninterrupted, typical, afebrile recovery. There was no recurrence of the fits; paralysis of the left arm soon disappeared, and he is living now and in perfect health.

III. *Case in which the symptoms exhibited pointed to lesion in frontal lobe, 1879.*—In 1879 an idiopathic case came under observation, in which the totality of the symptoms indicated a lesion in the left frontal lobe. It occurred in a patient, the subject of a small tumor above the left eyeball in the orbital cavity. A tumor had previously been removed by me from that position and had now recurred. Other symptoms had, however, meanwhile presented themselves. The left pupil was in a state of stabile myosis; there was obscuration of intelligence, slowness of comprehension, want of mental vigor and pain in the head. These pointed to the probability of a lesion in the left frontal lobe, but were not sufficient to permit a diagnosis to be made. The patient was, therefore, placed under the observation of an educated skilled nurse. Some weeks later a series of convulsions occurred, the initial stages of which were carefully recorded by the nurse, without which the key to the brain lesion, as indicated by the convulsions would have been lost, as when seen by me they had become general and threatened speedy dissolution. The convulsions were at the outset strictly limited to the right side, commencing in the face and arms, and confined to these two parts during the initial attacks. The leg on the same side was affected during the third seizure, and ultimately the convulsions became general with complete loss of consciousness. These phenomena were construed as indicating extension of the irritation to the lower and middle portions of the ascending convolution, and when this was considered along with the former evidence it was concluded that an irritative lesion existed in the left frontal lobe. On these grounds it was resolved to trephine midway between the centre of the ascending convolutions and the anterior aspect of the cranium. At this point a minute nodule, the size of a barley-grain, was detected on the outside of the skull. A large trephine was applied, a disk of bone removed, and a tumor of the dura mater, which was exercising pressure on the brain, was exposed. It was half an inch in thickness at this point, gradually becoming much thinner and spreading all over the anterior two-thirds of the frontal lobe. The tumor was, after a prolonged operation, carefully dissected out, along with the brain membranes where they were involved in the neoplasm. The patient rapidly recovered, was restored to perfect health and subsequently was able to gain her own livelihood. She lived for eight years afterward.

[Dr. Macewen then gave details of the other cases which occurred in 1883—one a tumor in the paracentral lobule, one an encephalitis round a clot situated in the ascending frontal convolution, one an intracranial effusion of blood in the lower part of the fissure of Rolando, all of which were successfully operated on.]

With the relation of these seven cases, all of which occurred prior to the end of 1883, the initial history of the movement ceases to be solely personal to myself. In December, 1884, Dr. Bennet and Mr. Godlee, assisted by Dr. Ferrier, had the first case operated on in London, in which a tumor was removed by Mr. Godlee from the brain.

A FEW POINTS REGARDING THE PRESENT ASPECT OF CEREBRAL SURGERY.

Reference may now be made to a few points regarding the present aspects of cerebral surgery. First, are the localizing motor phenomena reliable guides to the diagnosis of cerebral lesions situated in the motor cortex? My answer is unhesitatingly affirmative. Each case, however, requires to be studied on its own merits; the whole phenomena presented, the *unobtrusive* as well as the prominent features, must be carefully searched for, the degree in which each is present must be accurately measured, and the whole weighed and compared with former experience before drawing a conclusion. The various points upon which reliance is to be placed should be tested, wherever possible, by instruments of precision, instead of the rough impressions conveyed by the hand being trusted. In testing the power of the muscles in brachial paresis the dynamometer will impart much more accurate information than that which can be gained through the sense of touch, and occasionally shades of difference may be determined by it which would otherwise remain undetected. In many cases the evidences of focal lesions are so distinct that a diagnosis is easy; in others they are so intricate that a prolonged and minute investigation is necessary to decipher them, while there are still others in which the signs are so perplexing that at best an approximation only can be arrived at. To lay bare a certain known convolution on a cerebral surface, and observe the results of its stimulation, is an easier task than to take what appears to be a tangled skein of nerve phenomena, such as is presented by many lesions of the complex brain of man, and to relegate each to its true source, and infer from a study of the whole what particular parts of the brain are affected.

VIII. *Epilepsy, Jacksonian, induced by focal facio-lingual lesion. Removal of cyst from brain: cured*—In support of the foregoing the following instances are adduced, and a case is first presented in which the symptoms were so definite and precise that the dignosis was easy, and permitted me to perform the operation on first seeing the patient. He was twenty-two years of age, and suffered from epileptiform convulsions, each lasting from two to three minutes, and as they occurred on an average every five minutes, he consequently had over one hundred in twenty-four hours. The convulsions were limited to the tongue, the right facial muscles, and the platysma on the same side. When they subsided the parts remained paralyzed. Consciousness was retained throughout. Eight years previously he had received an injury to the head, after which his right arm became weak, the weakness persisting, though he was quite able to work. It was clear that an irritative focal lesion existed, confined to the base of the ascending convolutions, causing

a Jacksonian epilepsy. The only question was whether the base of the ascending parietal was involved as well as that of the ascending frontal. The contraction of the platysma on the opposite side has been asserted to be induced by stimulation of the base of the ascending parietal. Dr. Whitelocke reminded me, however, that the platysma is often supplied by a branch of the facial, so that a single lesion in the base of the ascending frontal would be sufficient to account for the whole phenomena. The operation was at once undertaken, when in the lower part of the ascending frontal a cyst about the size of a filbert was found situated partly in the cortical and partly in the white substance of the brain, and was surrounded by a narrow zone of encephalitis. In manipulating the medullary substance in process of removal of the cyst the patient, while under chloroform, had a convulsion confined to the same group of muscles as were affected in his fits prior to the operation. The convulsion ceased with the removal of the cyst, and he has never since had another. The wound healed firmly under one dressing, the paralysis of the facial muscle soon disappeared, and he has since been constantly at work. The power of the right arm has also been increased. Possibly the cyst might have caused indirectly slight pressure on, or had set up an inhibitory action of the middle portion of the ascending frontal. This case affords important evidence of the position occupied by the facio-lingual centre in man, and, on the whole, corroborates that assigned to it by experiments on the lower animals.

IX. *Protospasm of the hallux preceded by sensory impressions and followed by paralysis.*—In another instance a very definite protospasm, accompanied by a sensory impression, gave the key to the localization. It occurred in a girl aged seven, the subject of frequently recurring attacks of severe epileptiform seizures, followed by paralysis of the affected parts. At the onset of these attacks the patient first experienced in the great toe of the right foot a painful sensation of such severity as to cause her to scream out. Shortly after, that toe was firmly extended in tonic spasm, which lasted about five minutes. Sometimes this ended the attack. More frequently it was followed by clonic contractions of the muscles of the right foot, leg and thigh, where the convulsions often terminated. Occasionally they extended to the muscles of the trunk, then to those of the right side of the face and right arm, the contractions ceasing in the order of accession. Rarely did this involve the opposite side, and when they did the patient lost consciousness. Though there was motor paralysis in the affected parts, the cutaneous sensibility remained unimpaired. From the great number of fits which the patient had, following each other in rapid succession, occurring in parts affected with paresis, the result of former attacks, while the cutaneous sensibility remained unimpaired, and, from the limited area affected, it was concluded that the lesion was cortical. The sensory impression in the hallux, followed by tonic, and then clonic, contractions of the same parts, extending to the lower limb, pointed to the upper region of the ascendiag convolutions as the area of irritation. From the general condition of the patient and family history, the lesion was probably tubercular, and, if so, might be multiple. During operations the upper portion of the ascending convolutions was exposed, and, with the exception of a few tubercular nodules—the size of barley grains—adhering to the vessels over the upper part of the ascending frontal, there was nothing visible on the surface. On careful palpation of the ascending convolutions, there was found on the upper part of the ascending parietal a circumscribed nodule buried in the cerebral substance, which, on exposure, by cutting through the gray matter, was seen to be a tubercular tumor, about the size of a hazel-nut, which was easily shelled out. As an immediate result, there was prolonged trepidation, of an erratic kind, affecting the muscles of the right side of the body, but especially those of the arm and the leg. These were continuous for fully a week, thereafter gradually subsiding. There have been no fits for over a year, and the girl is now in excellent health. The marked sensory impression, which this lesion produced, supports Dr. Gower's opinion that the parts in the so-called motor area subserve a sensory as well as a motor function. The localization of the movements of the hallux in the upper part of the ascending frontal has not been borne out by this case (unless the minute barley-grain tubercular nodules attached to the vessels in the pia mater could account for the stimulation), the tumor being found in the upper part of the ascending parietal, but the whole lesion could be included in the ring which Beavor and Horsley place on the upper portion of the ascending convolutions.

With these data from my own experience, as well as from cases reported by Mr. Godlee, Mr. Horsley and many others, it is clear that the motor and sensory phenomena form reliable guides in localization of lesions in the central convolutions.

The diagnosis of cerebral lesions in non-motor regions may be made from sensory phenomena.—The following instance shows this, and is also an example of the difficulty of finding the exact clew to the lesion and how easily it may be overlooked.

X. *Psychical blindness, the key to a lesion in the angular gyrus. Removal; recovery. Medico-legal aspects.*—A man who had received an injury about a year previously suffered from deep melancholy, strong homicidal impulses, relieved by paroxysms of pains in the head of indefinite seat. Though the pain was excruciating he welcomed it, as it temporarily dispelled the almost irresistible desire to kill his wife and children or other people. Prior to receiving this injury he was perfectly free from impulses of this kind, and had led a happy life with his family. Behind the angular process of the frontal there was a slight osseous depression, which could not account for his symptoms. There were no motor phenomena, but on minute inquiry it was discovered that immediately after the accident, and for about two weeks subsequently, he suffered from psychical blindness. Physically he could see, but what he saw conveyed no impression to his mind. An object presented itself before him which he could not make out, but when this object emitted sounds of the human voice he at once recognized it to be a man who was one of his fellow-workers. By eyesight he could not tell how many fingers he held up when he placed his own hand before his face, though by the exercise of his volition in the act, and by other sensations, he was cognizant of the number. He had been in the habit of reading in the New Testament, and when he had so far recovered from his injury he wished to resume his reading. He knew where the book lay near his bed, and could put his hand on it in the dark. One day he stretched out his hand, took the book, recognizing it through the sense of touch, by its smooth leather covers and the deeply indented letters on its back; he opened it, saw what he considered must be the letters, and the blocking of them into divisions for the words, but they were unknown symbols to him, they conveyed no impression of their meaning, the memory of their sign was gone, it was a sealed book to him. These phenomena, however, gave the key to the hidden lesion in his brain. On operation the angular gyrus was exposed, and it was found that a portion of the internal table of the skull had been detached from the outer, and had exercised pressure on the posterior portion of the supra-marginal convolution, while a corner of it had penetrated and lay embedded in the anterior portion of the angular gyrus. The bone was removed from the brain and re-implanted in proper position, after which he became greatly relieved in his mental state, though still

excitable. He has made no further allusion to his homicidal tendencies, which previously were obtrusive, and is now at work.

Such cases of complete mind blindness are rare, and the definite localization in this case will assist in indicating in man what function the anterior portion of the angular gyrus and posterior portion of the supra-marginal convolution subserve.

In cerebral surgery, not only does one require to localize the lesion, to select suitable cases, but also, after exposing the brain and its lesion, to judge when to advance and when to hold the hand. In a case rightly localized from the motor symptoms, a tumor was exposed in the leg and arm centres, on the left side of the brain; but its dimensions were such as to cause me, after carefully contemplating them, to refrain from removing it, as it would have led to hemiplegia of a much more pronounced character than was present. Instead, the vessels which supplied it with nutriment and which ran into its substance from the surface were all ligatured, in the hope that this would effect a restraining influence on its growth. The patient recovered, and is considerably improved. Though the fits are not quite cured they are not so severe as formerly, and are somewhat altered in character.

ANCHORING OF THE BRAIN AND SOME OF ITS CONSEQUENCES.

When injury has been inflicted on the surface of the cerebrum, followed by plastic effusion and cicatricial formation, the superficial substance is apt to become soldered to the membranes, when these remain intact, which, in turn, may be soldered to the skull, or, in the event of their detachment, the brain may become directly adherent to the bone, by means of cicatricial adhesion. Thus the surface of the brain becomes anchored or soldered to its rigid walls. It has no longer the free play within its water bed to expand and contract according to the varying states of the circulation. Each variation produces a dragging of the brain at this spot, and through it the whole hemisphere, at least, is affected. Any sudden physical effort pulls on the brain, producing a slight shock, a momentary disturbance, just as if the cerebrum had received a blow. Vertigo results. People affected in this way cannot rise up quickly, or perform any sudden movement of the body or head, without experiencing a sensation of giddiness, which sometimes causes them to drop. Consequently they are often incapacitated from pursuing their usual avocation.

Following upon this the gray matter of the cortex, immediately surrounding the cicatrix, by the incessant movement, is apt to become unstable, and to produce fits. Some cases of traumatic epilepsy are thus caused. Further, if the cortical irritation be continued, encephalitis is occasionally produced, often appearing in a chronic form, and long remaining so, though susceptible of being lit up into an acute affection. If the temperature remains high, active interference is apt to induce an extension of the encephalitis. Operation in such cases should be, when possible, postponed. The disregard of this advice has, to my knowledge, in one instance, hastened the fatal issue, encephalitis becoming rapidly general.

REIMPLANTATION OF BONE TO FILL THE HIATUS IN THE SKULL.

Osseous defects in the cranial wall have hitherto remained permanent, the surgeon making no effort to fill the gap. The brain, in the majority of cases, has thus been exposed, the thin membrane forming an insufficient covering, the patient being doomed for the remainder of his life to wear some kind of plate as a protection from injury. Since 1873 the portions removed by me from the skull have been carefully preserved, rendered aseptic, divided into minute fragments and reimplanted. Whenever there has been immunity from suppuration, these have grown and the continuity of the osseous wall has been preserved throughout. In a case of injury nearly one-half of the left anterior portion of the skull was broken into fragments, which lay in a confused mass, mixed with brain substance, shreds of membrane, hairs, *débris* of lime and blood. The portions of bone were all rendered aseptic, divided into fragments and replaced, quite a mosaic work being thereby formed. On the tenth day a portion of the damaged scalp having sloughed, exposed four of the reimplanted pieces, two of which, lying side by side, presented a striking contrast—one being suffused with the pinkish blush of life, the other with the pallor of death. With the exception of two fragments which shed, all the others remained, grew and now form a firm, osseous wall affording complete protection. This case, operated on four years ago, will be shown at the demonstration in the Royal Infirmary, along with many others, where lesser defects have been filled. At the same time, a boy, whose humerus has been restored by bone grafting, will be presented. He was operated on ten years ago, and the bone has grown in length and thickness since.

STATISTICAL RÉSUMÉ.

Of twenty-one cerebral cases (exclusive of fractures of the skull or other immediate effect of injury) in which operations have been performed by me, there have been three deaths and eighteen recoveries. Of those who died, all were *in extremis* when operated on. Two were for abscess of the brain, in one of which the pus had already burst into the lateral ventricles; in the other suppurative thrombosis of the lateral sinus had previously led to pyæmia and septic pneumonia. The third case was one in which there existed, besides a large subdural cyst over the one hemisphere, extensive softening at the seat of cerebral contusion on the opposite hemisphere, accompanied by œdema of the brain. Of the eighteen who recovered sixteen are still alive, in good health, and most are at work, leaving two who have since died, one eight years after the operation, from Bright's disease, she in the interval being quite well and able to work; the other, forty-seven days after the operation after the abscess was perfectly healed, from an acute attack of tubercular enteritis.

SURGERY OF THE SPINAL CORD.

Turning to another portion of the nervous system, to which only brief allusion can be made, it is found that certain sensory and motor phenomena due to lesions within the spinal canal are amenable to operations which are attended by a measure of success sufficient to offer a prospect of relief to a distressing and hitherto regarded as a hopeless class of sufferers. The spinal membranes and the cord itself can be exposed and neoplasms and encroachments upon the lumen of the canal may be removed therefrom without unduly hazarding life. The

first operations of this kind were undertaken by me for the relief of paraplegia, due to angular curvature of the spine. In such cases pressure may be exerted on the cord either by connective tissue neoplasms or by direct displacement of the bodies of the vertebræ, both lessening the lumen of the canal. By lifting the laminæ from the affected part the tumor could be removed and relief at the same time given to the compressed cord, were the osseous walls in front found to encroach upon the calibre of the canal. This was successfully carried out by me first in 1883. By making an incision on the tips of the spinous processes and severing the tendinous connections, and then shelling the soft parts from the bone with periosteal elevators, the hemorrhage was so trifling as to be for the most part arrested by sponge pressure, and with suitable instruments the operation, though demanding care, was easy to perform.

Case of paraplegia with incontinence of urine and feces, due to connective tissue tumor at seat of angular curvature of spine, completely cured by removal of tumor and laminæ of vertebræ.—In 1882 a boy, aged nine years, came under observation suffering from complete sensory and motor paraplegia, with incontinence of urine and feces, which had existed for two years previously, but was absolute during the last eighteen months. For three years he had had angular curvature of the spine, most marked between the fifth and seventh dorsal vertebræ, for which he had been treated by extension and plaster jackets. When seen by me the curvature had become fixed by ankylosis of the bodies of the vertebræ. Treatment by extension and plaster jackets was, however, tried again under direct supervision in the hope of amelioration. It proved futile. The limbs were livid and cold, affected with marked spastic rigidity and with wasting of the muscles. The symptoms exhibited pointed to irritation and pressure of the spinal cord about the level of the sixth dorsal vertebra. The paralysis having existed slightly for two years and markedly for eighteen months, and showing no signs of amelioration under ordinary treatment, this operation was deemed expedient. Dr. Alexander Robertson saw this case, and agreed in the hopelessness of any other procedure than the operation. On May 9, 1883, the laminæ of the fifth, sixth and seventh dorsal vertebræ were removed. There was no pulsation in the portion of the cord diffused. Between the theca and the bone there was found a fibrous neoplasm of one-eighth of an inch in thickness, which was firmly attached to the theca, and covered about two-thirds of its circumference. This was carefully dissected off. The cord was then able to expand backward, and its pulsations, which up to this period were absent, began to show themselves, especially opposite the fifth dorsal. Twenty-four hours after the removal of the pressure the limbs had lost their livid color, were distinctly warmer, the spastic rigidity had greatly lessened, the sense of tickling the soles had returned, and that of touch had improved. The first return of movement was observed eight days after. Soon he had perfect control over his sphincters. Six months subsequently he was able to go about without support. Five years afterward he walked three miles to pay me a visit. He attends school regularly, joins in all the games, including football, and he says he feels quite strong.

A second but more aggravated case.—In 1884 another case was seen of a somewhat similar kind, though much more aggravated, the symptoms being so far advanced as to indicate organic changes in the cord itself, which rendered operation almost hopeless. It was only on the urgent and touching appeal of the girl herself that the operation was undertaken. A dense connective-tissue tumor existed between the bone and the theca, which was so firmly adherent to both that in some places the theca was elevated along with the neoplasm. The portion of the cord thus exposed was shrunken to about half its normal dimensions, and lay like an inanimate rod. After the elevation of a sufficient number of laminæ to expose a portion of the cord which pulsated, the pulsations were communicated to this rod, pushing it from above downward, but there were no distensile pulsations in the rod-like part of the cord. From the whole appearances presented at the operation it was considered that there was no hope of her recovering from her paralytic state. However, ten hours after the operation the limbs had lost their lividity, felt warm to the touch and the patient said she experienced a sensation as if she were dreaming that her legs were on and hot water was running through them. From the fourth day after the relief of pressure she had continence of urine and feces, for which alone, she declared, she would willingly have undergone the operation. Sensation quickly returned to the limbs; motion very slowly. Six months after she could move her limbs freely. Eight months subsequent to the operation she walked a quarter of a mile, stated she could perform many light duties in the house, besides attending to herself. She has since been very well and able to enjoy life.

A third case was also successful, but two others have not been so—one succumbed a week after the operation, the others some months later to an attack of tuberculosis. In both of these the temperature was high prior to the operation, and was subject to exacerbations, indicating an activity in the tubercular disease at some part distant from the ankylosed angular curvature. Since this experience no case has been deemed fit for operation in which the temperature did not run an even, regular and continuous afebrile course.

Paraplegia from traumatism, cured by elevating connective tissue tumor and depressed arch of twelfth dorsal vertebra.—From a coal-pit accident a man, twenty-two years of age, received a severe injury to the spine at the level of the lower dorsal vertebra, which caused absolute motor paralysis with incontinence. There was marked hyperæsthesia of the affected parts, which increased in severity during the first three weeks, so that he could not bear to have the floor shaken or his limbs touched. Between the third and fifth week a rapid change took place. At the termination of that period the muscles of the lower limbs would not respond to electricity, they had become so shrunken and wasted that the contour of the bones stood prominently out, and notwithstanding massage of the limbs after the cessation of the pain, the flexor muscles had markedly contracted, causing drooping of the feet and toes and fixation of the joints. Later, the skin over the bony prominences became red, pressure-points and bed-sores formed, irrespective of most scrupulous attention, the urine became ammoniacal and his temperature ran up. It was evident that a fatal issue was imminent unless an attempt to relieve the pressure on the spine was at once made. In February, 1885, this was done. The lower dorsal and the first lumbar vertebræ were exposed. The arch of the twelfth dorsal was found fractured and slightly depressed, and between it and the theca there existed a connective-tissue tumor, measuring nearly a quarter of an inch in antero-posterior diameter, and extending from the eleventh dorsal to the second lumbar vertebra. Both above and below the twelfth dorsal the tumor gradually shaded off to about one-half of its thickness at that point. It was confined to the posterior aspects of the canal. This tumor was carefully dissected from the theca. The same night there was a distinct improvement in the warmth of the lower limbs. He began to move his toes on the third day. A month afterward the contracted tendons about

the ankle and feet were extensively tenotomized to relieve the structural contractions, after which motor power rapidly increased. He was soon able to walk with support, which a year subsequently he discarded; and now he can move about with ease, but with paraplegic gait. [These last two cases were shown at the Pathological and Clinical Society, Glasgow, December 22, 1885, and published, appearing in the *Glasgow Medical Journal*, besides notes of them in the *British Medical Journal*.]

RÉSUMÉ.

Here are, therefore, six cases in which the elevation of the posterior laminæ of the vertebra has been performed. Four of these have completely recovered, and two have died; one of these from extension of tubercular disease months after the operation, and after the wound had healed, leaving one in which the operation possibly hastened the death of a patient who was otherwise in a painfully helpless and hopeless condition.

Such operations are now beginning to be practised by others. Mr. Horsley has, within this last year, published a successful case, in which a somewhat similar operation has been performed, for the removal of a small tumor of the theca, diagnosed by Dr. Gower.

In conclusion, let us remember that the same phenomena by which we are now able to recognize certain cerebral lesions and locate them in precise areas, were exhibited by patients who came under the eyes of our surgical predecessors, some of whom must have had the album of their memory filled with such impressions, yet they saw not their import. They were so hampered by the inculcated physiological dogma of the time that their true significance never dawned on them. The facts were reflected from their brain as objects from a mirror and no more. Gentlemen, there are all around us phenomena each with its hidden truth, obtrusively impressing our senses, and how do *we* fail to read their riddle?

ORIGINAL ARTICLES.

ICHTHYOL IN PULMONARY DISEASES.

By THOMAS J. MAYS, M.D.,
PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC.

Ichthyol, in common with many other valuable agents, has been introduced by the German medical profession, and it has already achieved a reputation which is likely to be permanent, at least so far as dermatology and surgery are concerned. Whether it will prove as effectual in internal as it has in external medication, remains to be determined by future research, and in the present paper I merely desire to direct attention to the possibilities of the drug in diseases of the respiratory organs.

Ichthyol, or fish oil, its literal English meaning, is a product which is distilled from a bituminous rock discovered about six years ago, in the Tyrol, near Seefeld. According to Professor von Fritsch, the bitumen of this rock constitutes the remains of decomposed animal matters, chiefly derived from fish; hence its name. "The products of distillation of this rock are treated with sulphuric acid and the resulting substance is neutralized either with ammonium or sodium, and the ammonium or sodium ichthyolate is obtained, which consists of a thick fluid resembling tar in appearance. It differs from known tars, vegetable and mineral, not only in odor, but especially in its physical properties. It is soluble in water and partly so in ether and alcohol. It is volatile to a certain degree. It is rich in sulphur, containing about fifteen per cent. in a condition of such intimate union that it cannot be separated without complete decomposition of the substance.

Dr. Unna, who first recommended it as an important application in skin diseases, found that when it is constantly applied to the healthy skin for weeks, and even inclosed by an impermeable covering, it does not produce dermatitis, which would inevitably follow the application, under like conditions, of an ointment containing ten per cent. of sulphur (*Pharmaceutical Record*, May 15, 1885). According to the physiological experiments of Professors Baumann and Schotten, it produces no toxic effects in dogs in less than two drachm doses, while in doses from three to five drachms it brings on copious intestinal discharges. Professor Nussbaum took as much as seventy-five grains himself, without experiencing the least inconvenience. Little is therefore known of its physiological action, and a more thorough and intimate study of the drug in this direction is much desired.

My attention was first seriously called to this substance by the very practical paper on Ichthyol in Surgery, read by Dr. Edward Martin before the Philadelphia County Medical Society last winter, in which he sums up his own study of the action of the drug, externally applied, in cervical adenitis, in inflammatory indurations of the subcutaneous tissue, in furuncles, in cellulitis and in erysipelas, and, with a few exceptions, he renders a very favorable verdict concerning its influence in these diseases. Testimony of a similar character comes from Professor Nussbaum, who recommends it very highly, both internally and externally, in gout, in rheumatism, in hyperæmia of the fauces, of the larynx, of the pharynx, in neuralgia, etc. The latter authority believes that it is in virtue of its power to constrict the capillary bloodvessels that ichthyol reduces congestions and inflammatory swellings of the cutaneous and mucous surfaces; and the surprising rapidity with which it disperses local hyperemias, as it does erythema of the nose, eczema of the face, for example, which often disappear after a few applications, is evidence that it possesses a marked influence on these structures.

These considerations have led me to its internal employment in the various inflammatory phases of bronchial and pulmonary diseases, especially in those which are characterized by severe cough, copious expectoration, dyspnœa, etc. At first I administered it by the mouth alone, then conjointly with inhala-

tion, but, latterly, I have used it almost exclusively by inhalation, believing that in most cases the best results are obtained in this way. By the mouth I give it every four hours, in capsules, each containing from four to six grains, and for inhalation I employ a 25 per cent. watery solution, and allow the patient to breathe it through a Genois' respirator four or five times a day, about one hour each time. It is sufficiently volatile practically to saturate the air which the patient breathes in this manner. Although it seems to have a disagreeable odor, patients do not, as a rule, object to its inhalation; some even prefer it to carbolic acid.

Its good effects are generally manifested in a lessening of the cough, in diminishing the amount of expectoration, in a relief to the dyspnœa and in an improvement of the appetite. Associated with this amelioration of the symptoms there is usually an improvement in the physical signs—the moist râles disappear, showing that the catarrhal proliferation in the bronchial tubes is checked. The dyspnœa which is relieved by ichthyol is not that which is mitigated by nitroglycerin, stramonium or lobelia and which exists in virtue of a spasmodic condition of the bronchi; but it is that which depends on an accumulation or on an undue secretion of catarrhal material in the tubular parts of the lungs.

Ichthyol is not recommended here as a panacea in all kinds of chest affections, but when it is properly adapted to the morbid conditions, that is, when it is given for profuse expectoration, as in chronic bronchitis, bronchorrhœa, pulmonary consumption, secreting cavities, etc., I believe it to be a positive addition to the therapeutics of pulmonary diseases.

I will append the clinical history of some cases in the chest service of the Philadelphia Polyclinic, in the Chest and Throat Dispensary and in my private practice which have been treated with it.

Case I.—Male, aged thirty-four, was first seen March 20, 1888, when he had a cough and copious yellow expectoration, which had existed for four years. He also suffered from dyspnœa, night sweats, insomnia, had hemoptysis and gives a venereal history. Physical examination showed a small cavity and some mucous râles at right apex. On account of the venereal taint he was placed on eight grains of potassium iodide every four hours

March 24. No better, cough and expectoration same. No change in the treatment.

27th. No improvement. Ichthyol by the mouth, four grains every three hours.

29th. Cough and expectoration much diminished, and thinks he is better in every way. Is now able to sleep. After this date the patient returned to work, from which he had been absent for some time, and has continued to improve ever since. He is still under occasional observation, and there is no doubt that the ichthyol was of much service to him.

Case II.—February 16, 1888. Male, forty-two years old, stone-cutter, had cough and profuse expectoration ever since 1881, when he had pneumonia. He is losing flesh, has much dyspnœa, especially on exertion, and eats well. Physical examination shows a large cavity at right apex. Four grains of ichthyol every three hours were prescribed for him, and a general amelioration of all his unfavorable symptoms took place. He resumed work a short time since.

Case III.—February 8, 1888. Male, aged twenty-six, had hemoptysis, some cough and expectoration, swollen vocal bands, and was very hoarse. Dulness at left apex, associated with crepitation. Was treated with indifferent results until the 9th of March, when he received four grains of ichthyol every four hours, and he has gradually improved ever since so far as the symptoms of his case are concerned.

Case IV.—March 9, 1888. Female, forty-two years old. This is a case of chronic phthisis with quite a large cavity at the left apex, associated with a harassing cough, free expectoration and sleeplessness. She was treated with various palliatives until March 27th, without much relief, when she received four grains of ichthyol every three hours, which gave her more ease than anything else. More recently the inhalation of ichthyol has been substituted for its administration by the mouth, and she says she can readily control the paroxysm of cough by inhaling it.

Case V.—March 27, 1888. Male, aged twenty-three, has coughed for some time, yellow expectoration, no hemoptysis, dyspnœa, appetite poor, night sweats, losing flesh. Weight one year ago one hundred and thirty-eight pounds, now weighs one hundred and twenty-two pounds. His father, mother and one sister died of pulmonary consumption. Physical signs: tympanitic resonance at right apex, extending to second intercostal space, and dulness from there down to base. Dulness also extends from apex to base posteriorly, associated with crepitation and subcrepitation over whole lung. Afternoon temperature $102\frac{3}{5}$° F.

March 31. Temp. 103°. Four grains of antifebrin every three hours.

April 3. Cough less; temp. 101°; same treatment.

5th. Appetite better; added four grains of ichthyol every four hours to the other treatment.

6th. Feels about the same; temp. 104°. Six grains of antifebrin every three hours and same amount of ichthyol.

9th. Temp. 104°. Seven and a half grains of antipyrin every four hours.

16th. Temp. 103°; same treatment.

23d. Temp. 104°. I now gave him a twenty-five per cent. aqueous solution of ichthyol to inhale in respirator in connection with the same dose of antipyrin.

30th. Temp. 102°; same treatment.

May 7. Temp. 100°; cough and expectoration much less, and appetite and general strength much improved; same treatment.

28th. Coughs and expectorates very little and only in the morning; appetite very good; temp. 101°. P. M. Dulness at anterior portion of right lung disappeared, and has diminished behind. No moist

râles audible anywhere, except a few over the site of the cavity; but a slight crepitation at base of same lung in front.

31st. The antipyrin producing an itching rash, it has been discontinued since the 27th inst., and he only inhaled the ichthyol. Temp., 3 P.M., 99¼°.

Case VI.—April 7, 1888. Male, aged eighteen, cough for eight months, expectoration profuse and yellow in color, sometimes blood-streaked, dyspnœa, losing flesh, night sweats, temp. 100⅘°, in the afternoon. Physical signs: dulness over left lung, especially marked behind, associated with subcrepitation. Exaggerated respiration over whole of right lung. Antifebrin four grains every three hours.

April 16. Temp. 99½°; same treatment.

26th. Temp. 100½°: ordered a twenty per cent. solution of ichthyol in water for inhalation, additionally to the antifebrin.

May 3. Temp. 100°. Says his cough and expectoration are improved, and that he breathes easier after each inhalation. Same treatment.

31st. Temp. 100°. Feels very good; continued the ichthyol inhalation, but substituted antipyrin (seven and a half grains) for the antifebrin.

Case VII.—This case has been under my care since October, 1887. He was then fifty-three years old and had a troublesome cough, a profuse, tough, gray expectoration, hemoptysis, wasting, night sweats; and the physical signs showed that the upper portion of the right lung was in process of infiltration. After the hemoptysis had been subdued, the constant cough and the excessive expectoration remained as disturbing factors which nothing succeeded in checking until I gave him the ichthyol inhalations.

This case is a curiosity on account of the many agents which I had given him for the relief of his cough, without any decided, permanent benefit. He had received potassium iodide, calcium chloride, mercury, geranium, euphorbia pilulifera, nux vomica, capsicum, chloroform, ether, tar, tolu, menthol, arsenic, ichthyol by the mouth, atropia, hypophosphites, quebracho, both the alkaloid quebrachine and the fluid extract, carbolic acid by the mouth and by inhalation, codeia, camphor, whiskey and cod-liver oil. Unquestionably these agents proved to be of some service, but not one or any combination of them had the same definite influence in controlling the cough and expectoration as the ichthyol had when I gave it to him in the form of inhalation. Both disappeared almost entirely within twenty-four hours after using it, and neither has returned up to the present time. It must also be stated that on account of a slight rise in his temperature he also received antipyrin during the time the ichthyol was employed, to which must be ascribed some of the beneficial effects.

This line of practice, associated with the giving of antipyrin, antifebrin or phenacetin, has been followed in every case which showed a similar disturbance of temperature, and additionally a most liberal nutritious diet was prescribed, together with such pulmonary gymnastics as seemed advisable.

It is our common experience that cough and expectoration in many forms of chronic chest troubles, especially in phthisis, are two of the most aggravating factors with which we have to deal, and the favorable results obtained from ichthyol in these, as well as in a number of other cases in which it has been tested, recommends it at least for the alleviation of these symptoms and probably also for the amelioration of the local physical conditions which have been witnessed in several instances.

Whether ichthyol, by acting on the capillary bloodvessels, checks the inflammatory changes in the lungs, or whether, by means of its large percentage of sulphur, it merely disinfects the bronchial tubes and in this way inhibits the catarrhal processes, or whether it acts in some other manner are questions which must be left open for future investigation.

CASE OF CHRONIC ATROPHIC ASCENDING PARALYSIS, WITH SCLEROSIS OF POSTERIOR ROOT ZONES.

By HERMON C. GORDINIER, M.D.,
of Troy, N. Y.

May 5, 1887. Mrs. B., æt. forty-five years. Mother died of phthisis; father, of hemiplegia; brother, of some form of paralysis: has a sister, who several years ago had hemiplegia and has since developed epileptic fits, with distinct aura. Patient has had no previous acute illness since childhood. Denies syphilis. Has had eleven miscarriages. Present sickness began eighteen months ago. Patient noticed that on physical exertion she became excessively tired and felt very weak and exhausted; soon after, was compelled to give up all work about her house. At the same time, muscular twitchings began in the right leg; the leg became weak and dragged, and, in order to walk, she had to push a chair before her, or to use two sticks; locomotion soon became so difficult that she was obliged to take to bed or sick-chair. The muscular twitchings annoy her very much and are confined to the muscles of the calf and thigh of the right side, which are wasting rapidly. Muscular twitchings are seen in the right forearm and arm: muscles of hand are atrophied. Bladder and rectum normal.

Physical examination.—Patient much emaciated; face pale; hearing acute; smell and taste normal. No strabismus. Muscles of legs markedly atrophied; no fibrillary twitchings to be seen in the muscles of the lower extremities. The interossei and thenar muscles of right hand wasted. The normal fulness of thenar eminence much flattened; base of first metacarpal bone very prominent; no abduction of index finger; marked depressions between the metacarpal bones, due to wasting of lumbricales. Extensor muscles of hand rapidly wasting; fibrillation distinct in the muscles of the right upper extremity; hand in *main-en-griffe* position. Muscular twitchings beginning in left hand. Rapid atrophy of

interossei and muscles of the ball of the thumb. Irritability of the muscles exaggerated. Reflexes: patellar tendon reflex on right side absent, slight on the left; no foot or rectus clonus; triceps reflex normal. Pupils react to light and accommodation; pupils equal; no change in the disks. Temperature, tactile, painful and muscular senses normal. Grip of hands weak. Extremities cold and little cyanotic.

Electrical examination.—Reaction of degeneration present in the muscles of the lower extremities; they do not respond to the strongest faradic current. The only muscles that do respond in right upper extremity are a few flexors, and the supinators, biceps and deltoid give a sluggish response. Muscles of left hand and forearm respond but slowly to moderate currents. Biceps and deltoid give quick contractions. There are no symptoms of bulbar paralysis, no atrophy of intercostal muscles, no dyspnœa, no headaches. Lungs emphysematous. Heart normal. Urine contains neither albumin nor casts.

16th. Fibrillation has extended to pectoral, rhomboidei, supra- and infra-spinati and lower part of trapezii; has slight dyspnœa; is very weak; tires easily.

June 19. Muscles of back wasting quite rapidly. Bulbar symptoms first noticed; considerable difficulty in swallowing; marked dyspnœa, choking sensations, inability to cough or raise mucus collecting in larynx; changed voice.

27th. Bulbar symptoms progressing; dyspnœa and difficult deglutition very annoying; patient has had no pain or sensory disturbance; no change in sensation.

July 22. Patient very weak. Muscles of left forearm much atrophied; hand in the bird-claw position; muscles do not respond to the strongest faradic currents. Respiration mostly costal; slight nystagmus; marked lordosis; back muscles much wasted, and fibrillation very marked. The normal appearance of the face presents a striking contrast to the rest of the body, which looks like a living skeleton covered with integument.

August 1. Patient died, probably of paralysis of diaphragm.

Autopsy twelve hours after death.—The entire cord and a portion of the brachial plexus were removed; there were no macroscopic changes in the dura or pia mater, and sections of the cord showed no change to the naked eye. The specimens were hardened in a four per cent. solution of bichromate of ammonium. The specimens, after being properly hardened, were sent to Prof. M. Allen Starr, of New York, who kindly furnished me with mounted specimens and made the microscopic examination, which showed the following changes:

(1) In the entire extent of the gray matter of the cord there was a very marked absence of the ganglion cells in the anterior horns. In the cervical segments, where from forty to sixty cells are constantly found in each anterior horn, the number was reduced to six, eight or ten, and in some sections no cells at all were to be seen. Here and there single cells were found in process of degeneration, being swollen and the nucleus absent, or granular, or in a state of fatty degeneration and shrunken; numerous nuclei throughout the gray matter indicated the previous existence of cells which had undergone degeneration. No groups of cells had escaped in the process of degeneration. There was an increase in the neuroglia nuclei throughout the gray matter. There was a very marked increase in the size and apparent number of capillaries throughout the gray matter, both in the anterior and posterior horns.

(2) The appearance of the white matter at different levels. In the cervical region there was a slight increase in the connective tissue trabeculæ throughout the part of the antero-lateral columns lying adjacent to the gray anterior horns; but this was not limited in extent to any functional tract, and there was no evidence of systematic lateral sclerosis. The nerve-fibres were somewhat crowded, but apparently not destroyed by the connective tissue increase.

(3) In the sacral, lumbar and lower dorsal regions of the cord, as high as the seventh dorsal segment, there was a very distinct *sclerosis* of the *posterior root zone*, more marked on the right than on the left side. This was more extensive in the sacral than in the lumbar, and in the lumbar than in the dorsal regions; but in the sacral and lower dorsal segments the posterior median column was not affected at all by this sclerotic change; and throughout all the segments the zone immediately adjacent to the posterior gray horn at its periphery and the area lying on the border of the columns of Goll and Burdach were not affected. The anterior nerve-roots were degenerated, and the cross section of nerves of the brachial plexus showed deficiency of fibres in comparison with normal nerves.

A case is reported by Ross, vol. i. p. 923, with almost the exact anatomical distribution of the lesions as in my case.

INSUFFICIENCY OF THE INTERNAL RECTI MUSCLES.[1]

By H. F. HANSELL, M.D.,
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THE attention of the profession has been frequently called, in the past few years, to the important *rôle* played by refractive errors in the causation of neurotic symptoms, and it is a well-known fact that headaches of years' duration have been cured by wearing the proper correction of an optical defect. This knowledge is not confined to the profession, but is well known to the laity, and the sufferer from chronic headache does not wait until he has vainly exhausted the pharmacopœia, but seeks at once the relief offered by glasses, provided he has reason to connect his sufferings with the use of his eyes.

The defects of refraction are hypermetropia, myopia and astigmatism, simple and compound. Each causes eye-strain and headache, which can be relieved by wearing a concave, convex or cylindrical glass of the correct curvature, singly or in combination. Most

[1] Read before the Pennsylvania State Medical Society, June, 1883.

cases of functional headache which come under the notice of the ophthalmic surgeon may be classified under two heads: 1st. Those due to accommodative strain depending upon some error of refraction. 2d. Those due to an insufficiency of one or more of the extrinsic muscles. The causation of the first class is well understood and the treatment eminently satisfactory. To the second class I wish to invite your attention in this brief paper.

The diagnosis of insufficiency is attended with many difficulties, and thus far no accurate instruments or methods have been devised which at one examination can detect, with any degree of certainty, a want of coördinative action on the part of the recti muscles. The simplest and most reliable method for distance is by the use of prisms and the candle or small gas flame, and for near by, prisms and a modification of the Gräfe test.

In testing for errors of refraction 20′ is considered infinity—that is, rays of light coming from an object of small size at that distance are practically parallel and focussed by the emmetropic eye on the retina with no effort of accommodation, and so each eyeball is in a position of rest and its axis parallel to that of the other, and an object seen at 20′ distance makes an image on corresponding parts of each retina and is seen single. The extrinsic muscles are seen relaxed, and if they are in equilibrium the lines of vision running from the fovea of each retina meet on the object at 20′, forming a very acute angle; this angle is, however, not regarded, and these lines are said to be parallel. Now, if for any reason one eye is diverted, the rays of light from the object will not fall on the fovea but on a neighboring part of the retina and double images will be seen. If these images are in the same horizontal plane, the deflection will be caused by a want of equilibrium between the external and internal recti muscles; if in the same vertical plane, by that of the superior or inferior rectus. When the image seen by the right eye is to the right of that seen by the left, homonymous diplopia results: the equilibrium is disturbed, the eyes are converged, the external recti are relaxed and the internal contracted; and if it is to the left, crossed diplopia, the opposite condition, obtains.

These laws hold for testing at the near point or reading distance. Here Gräfe's test, which consists of a dot with a line running through it vertically, is usually employed. Practically this test is more exact if the dot without the line is used, as suggested by Prof. Wm. Thomson, for when there is a tendency to double vision and the insufficiency is not easily discovered, the line stimulates the brain to preserve the equilibrium. When an insufficiency of high degree exists the patient will complain of double vision both for far and near, and the degree of deflection can be readily ascertained by the above methods; but when the insufficiency is only suspected, and no complaint is made of double vision, the tests must be modified by the induction of vertical diplopia by means of a prism.

For obvious reasons the brain refuses to recognize double images, when by muscular effort it can control it. A patient with even a decided insufficiency of the muscles either side will maintain that he sees but a single object, as he really does, because he has enough power to hold his lines of vision parallel for distance or converged for near. If, however, a prism strong enough to overcome the superior or inferior rectus be placed vertically before either eye he will have vertical diplopia. Now, if the side muscles are in equilibrium in testing for distance, one light will be directly over the other, or, for near, the two dots will be in a vertical line; but when the internal muscles are too weak and the lines of vision diverge, the patient will have crossed diplopia, and, if the external muscles are too weak, homonymous diplopia. The prism placed horizontally, which is necessary to bring the light or dot back to the vertical line, will be the measure of the insufficiency.

Effects of refraction. Latent divergence is more common than is supposed. It is most frequent in myopia, but is not uncommon in hypermetropia and emmetropia and is more constant with myopia than latent convergence with hypermetropia. This is due to the relation of accommodation and convergence. When an emmetrope fixes a small object at 14″ distance with both eyes, he uses just as much contraction of the internal recti as will bring the centre of each retina opposite that object. If we cover one eye, the direct stimulus of the convergence is removed, and if, in spite of that, the lines of vision do not diverge, the effort is maintained by the accommodation, which is associated with the convergence. When a myope of one-eighth, for instance, fixes an object 12″ distant, the accommodation is not brought into use, and that stimulus is removed from the convergence. Hence, if one eye is excluded, he has so much the less stimulation than the emmetrope, and the anatomical position of the eye's parallelism is the more readily assumed. A correction of the myopia, restoring the case to one of emmetropia and thus forcing the accommodation, which in turn necessitates convergence, may cure an insufficiency which may be present in an uncorrected case.

The *symptoms* are not dissimilar to those caused by errors in refraction, especially hypermetropia and astigmatism. Reading and the near use of the eyes are possible for only a short time. They give rise to neuralgia, dizziness and nausea, blepharospasm and then, perhaps suddenly, double vision, with the lines and letters running together. The muscles are able to endure the strain of convergence for a limited time, before one eye diverges. Some cases can continue to work for years, by learning to tilt the head in the direction of the affected muscle, while others

are compelled to forego all close application. A cessation of pain and headache occurs at once when vision ceases to be binocular; one eye diverges and the work is done by the other. The case has now become one of relative latent divergence—that is, binocular for distance, monocular for near and, finally, passes into manifest, absolute external strabismus.

The *causes* of insufficiency are not readily determined, but, in general, they may be divided into constitutional and local. The first, which may underlie all cases and predispose to the affection, are so-called malaria, neuropathic predisposition. "Difficulties attending functions of accommodating and adjusting the eyes in the act of vision, or irritation arising from the nerves involved in these processes, are among the most prolific sources of nervous disturbances and more frequently than other conditions constitute a neuropathic tendency" (Stevens's *Functional Nervous Diseases*), exhaustion from overwork or confinement, convalescence from slow fevers, muscular debility, etc. The main local causes are errors of refraction; others are the use of one eye armed with a magnifying-glass in fine work, as watchmaking, long-continued reading, writing and other close application in bad light, etc.

Treatment. The problem in the treatment is to know when the symptoms can be relieved by the prisms, and when, without the preliminary use of prisms, an operation should be advised. Here, as in other domains of surgery, the conservative plan should be followed, both for the general reason that operations are the last resort, and the part is more or less changed from the normal in its anatomy and functions, and for the especial one that in cases which seem at the first examination to be fit for a division of the muscle, the internal rectus not infrequently regains its normal strength in the improved general condition of the patient. Whether the prisms will effect relief or cure depends upon the degree of the insufficiency and the relative strength of the muscles, which in all cases should be ascertained by their power of overcoming prisms. Normally the internal are immensely more powerful than the external, and are able to fuse images through prisms of 50° to 100°, while the limit of the external is reached at 12° to 15°. If the insufficiency is not in excess of 10°, prisms of one-half that strength divided between the two eyes—3° in one, 2° in the other—should be ordered.

In selecting the eye which is to wear the stronger prism, difficulties arise, for insufficiency is seldom the fault of one internal muscle more than the other, but it is in the coördination of both. When double vision is induced by vertical diplopia the patient not infrequently designates the image which is displaced by the prism as the true one. The eye before which the prism is placed sees no displacement, but the object seen by the other eye is the one which seems to have been moved. Insufficiency is primarily a nervous affection, muscular only in its symptoms and manifestations, and the misinterpretation as to the displaced dot must be purely psychical. While the actual displacement when a vertical prism is before the right eye is certainly the image seen by that eye, the brain refuses to recognize it as such, but transfers the displacement to the left, the image seen by which has not been disturbed. In such cases it is impossible to conceive that the insufficiency is in the right or in left internal rectus alone, but must be in the combined action of both—that is, the converging power is too weak for the work required of it. The external recti are not in every case, indeed, not in many cases, stronger than the normal, and not infrequently they are weaker. The act of convergence is not in itself an antagonism between the internal and external muscles, but is an act of the internal alone, as stimulated by the third nerve. If the prism required to bring the dots in a vertical line be over 10° for far and 15° for near, little help can be expected from the wearing of prisms, for the insufficiency is great enough to produce double images. Diplopia for far and near will be a prominent symptom, in the distance, when looking at a single well-defined object, such as the moon, and near, looking at a needle or other bright, small object.

Dr. George T. Stevens, who has contributed largely to the literature of the insufficiency of the ocular muscles, introduces a nomenclature, the main advantage of which is to designate the affection in one word, and by the prefix of that word name the variety. Thus "heterophoria" (*ekros*, deficient; *phoros*, a tending) is the general word for insufficiency of all varieties. This is modified according to the muscle affected: esophoria, a tending of the visual line inward; exophoria, a tending of the visual line outward; hyperphoria, right and left, a tending of the right and left visual line above its fellow. Tendencies in oblique directions may be expressed by a combination of the specific terms.

The following cases, briefly described, have been selected to illustrate the principal symptoms and the principles of treatment.

Case I.—Miss A., æt. nineteen, an industrious student, who uses her eyes many hours daily in close work, had been for some time, and still is, under treatment for neurasthenia, complained of nearly constant headache and pain in the eyes, unrelieved by a correction of her astigmatism, which she had worn for some years. Insufficiency of internal rectus 2° for distance, 5° for near. Ordered 2° O. U. to be worn over astigmatic correction in reading. Returned in a month with inability of binocular vision for near. Her power of convergence was nearly lost, though she suffered less pain and headache. Tenotomy advised and declined. Returned in a year intensely annoyed with constant double vision. In-

sufficiency for near varied from 15° to 20°. Tenotomy of right external rectus. In a month the symptoms had disappeared.

Case II.—Mr. G., æt. thirty-five years, suffered for years with asthenopia. Had refraction tested several times, and had worn a correction for a very slight H. without relief. Insufficiency 5° far, 10° near; ordered 3° base in O. U. for near. Returned in five weeks, saying he could use his eyes for three hours with the prisms without pain, under the same conditions under which he had formerly been able to read but five minutes. The insufficiency was unchanged.

Case III.—Mr. C., æt. twenty-two; suffered from headache for years. Was obliged to give up his college course on account of his asthenopia. Had a moderate degree of M. and As. which had been corrected years before. Insufficiency = far 3°, near 6°. Ordered 2° base in O. U. In one month, could read two hours before headache appeared. In two months, headache entirely gone. In six months, no insufficiency for far or near, and could read all day without pain or prisms.

Conclusions:

1. In all cases of continued functional headache the extrinsic muscles should be examined.

2. Insufficiency is found in E., H., M. and As.

3. Headache due to insufficiency can be relieved by prisms or by tenotomy; by the former if less than 10°; by the latter if more than 10°. In my experience an operation on both eyes has never been necessary.

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TREATMENT OF HYDROCELE BY INCISION OF THE TUNICA VAGINALIS AND BY A NEW PROCEDURE.

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In The Medical News of April 7, 1888, my old friend, Dr. W. W. Keen, of Philadelphia, contributes an article on the "Radical Cure of Hydrocele by Excision of the Tunica Vaginalis," the article having been read at the Philadelphia Academy of Surgery, March 5, 1888. In the discussion which followed the reading of the paper (as reported in The Medical News), Dr. Gross, of Philadelphia, begged leave to correct Dr. Keen in regard to the history of the operation and says:

"The history of the operation is briefly as follows: In 1873, Volkmann resorted to incision of the tunica vaginalis, with drainage and suture of the edges of the tunica vaginalis to the edges of the scrotum. In 1875 he incised the tunica vaginalis, united it with sutures, and also passed deep sutures, bringing the surfaces of the tunica vaginalis together. He was, therefore, the first to excise, as he was the first to incise, etc."

During the discussion Dr. Keen also makes use of the expression "the incision of Volkmann." From this language I have no doubt that Volkmann was the first to announce or report the incision of the tunica vaginalis as a remedial measure for the cure of hydrocele. He was not, however, by any means, the first to practise it.

I commenced the study of medicine, in 1859, with Dr. Samuel Muir, of Nova Scotia, who enjoyed a very extensive surgical practice, being well and favorably known throughout the lower provinces. Shortly after I commenced my studies, a patient came into his office with hydrocele. Dr. Muir remarked that this was a case of hydrocele upon which he had already operated three or four times by tapping and injections of diluted tincture of iodine, and that, having failed to make a cure, he would now proceed to make a free incision, laying open the sac, which he would brush with pure tincture of iodine, also saying that this was the proper treatment in all such cases in which the injection failed to cure or in which the injection was followed by suppuration. As he said nothing about the procedure being new or original with him, my attention was never called to the literature of this operation until I read Dr. Gross's statement.

I have treated, in all, quite a number of cases of hydrocele and have found it necessary to follow my old preceptor's method on two occasions. The first case was that of a French marketman, age about forty, who consulted me in 1869; he had been operated on by tapping and injections several times, and a great deal of inflammation and pain had followed the last injection, about three months before. The hydrocele was large and the scrotum thickened and infiltrated; he was unwilling to have the operation repeated, on account of its frequent failures and the pain and inflammation caused by the last. I made a free incision and brushed the tunic with tincture of iodine; the result was a perfect cure. I saw the man a few years ago; he remained well. The second case on which I operated by free incision was for inflammation and suppuration which followed aspiration and injection.

Recently I have adopted a new and, so far as I know, an entirely original method of treating hydrocele, viz., to puncture the sac with Southay's dropsy trocar, leaving the canula in; after the fluid is all discharged applying absorbent cotton, covering with oiled silk and retaining with a suspensory bandage. As yet I have only aspirated four times: one case was cured, the canula remained in ten or twelve days, there being a few drops of pus in and about the canula. One case disappeared, canula and all; in one case the canula worried the patient and I removed it; and in the fourth case the canula dropped out. In both the latter cases the fluid reappeared, and I have repeated the operation since with the small canula, not leaving it in, but simply to relieve the patient. They both objected to injections.

I have had a canula made by Folkers Brothers, a quarter of an inch longer and with a double bulb. In operating I intended to force the first bulb through the scrotum into the sac, so that it will remain there until it is removed. I attempted to tie the little Southay canula in but failed.

Any one familiar with Southay's dropsy trocars will readily understand what is meant by a double bulb, as each little canula has a bulb on its distal end to prevent it from passing through the skin and being buried in the cellular tissue. The object of leaving the canula *in situ* is to drain off the fluid as it accumulates, thus allowing the surfaces of the sac to remain in contact, when it is expected that they will soon adhere, effecting a radical cure. It is probable that in most cases adhesions would take place after tapping were it not for the reaccumulation of the fluid separating the membranes.

ANOTHER CASE OF EPILEPTIFORM CONVULSIONS FOLLOWING THE USE OF COCAINE AS AN URETHRAL ANÆSTHETIC.

By J. CLARK STEWART, M.D.,
of Minneapolis, Minn.

Reading in The Medical News of July 21, 1888, the account of a case of death following injection of the urethra with a solution of cocaine, I am led to narrate a case occurring in my own practice, which resembles that reported, though, fortunately, without a fatal result.

A. B., æt. thirty-two, English, came to me for gleet, and on examination of his urethra I found a stricture four and a half inches from the meatus admitting No. 18 F. There were also several slighter constrictions anterior to this, and the meatus admitted only No. 22 F.

There was no reaction after the examination, and one week later I injected the urethra with ʒjss of a four per cent. solution of cocaine hydrochlorate, and proceeded with an Otis dilating urethrotome to cut meatus and anterior strictures and dilate canal quite thoroughly.

I then passed a steel sound, No. 30 F., to the neck of bladder only, and after removing it, patient sat up. He almost immediately said "I feel sick," stiffened out and became unconscious, with widely dilated pupils and rapid and feeble pulse. This condition lasted, perhaps, one minute, when he recovered his senses, though very much dazed, and said, "What is the matter; I feel very queer?"

Then, after a moment or two, he said "I feel badly again," and sank back on the table and became unconscious. He again became perfectly rigid, but this time went on to have violent general convulsions, almost throwing himself from the table. The convulsions were clonic, beginning in face and extending over the whole body, and there was, throughout, partial suspension of respiration and increasing rapidity and weakness of the heart's action. The convulsion lasted, perhaps, two or three minutes, and the patient became deeply cyanosed and then very gradually recovered consciousness, it being about an hour before he was able to leave the office, though there was no repetition of the convulsion.

I saw him repeatedly afterward, and dilated his urethra with the Otis and steel sounds without cocaine and without any disagreeable symptoms, though my having put him on bromide of soda, gr. xxx, t. i. d., may have influenced this.

After closely questioning him I obtained an obscure history of epilepsy showing itself as *petit mal* and concluded that I had to deal with a simple case of epilepsy, and that the convulsion had been caused by the excitement of the operation, perhaps influenced by some specific action of the cocaine.

Reading the report of Dr. Simes's case, I am led to record mine, thinking it may prove of interest from the similarity of symptoms, and from the fact that a history of previous non-convulsive epilepsy was elicited.

In closing, I should like to suggest as a query, to our neurologists, whether cocaine may not have some specific action in precipitating the epileptic attack in predisposed subjects.

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MEDICAL PROGRESS.

Some Indications for the Administration of Chloral and of Morphine.—Both choral and morphine have peculiar uses. The one will not always replace the other. Aufrecht, of Magdeburg (*Therap. Monatsh.*), recommends chloral, exclusively, for delirium tremens; he has so used it in several hundred cases. He expresses surprise that opium or morphine should yet be used in this condition. It is only since the introduction of chloral that a successful treatment of delirium tremens has been possible. The drug, however, is not to be given in broken doses. Single doses of forty-five or sixty grains in six drachms of syrup and water, several nights consecutively, furnish the best results. The author has found this dosage exceedingly well borne by adults; smaller doses do not answer. He urgently warns against the addition of morphine to chloral; he considers the combination dangerous. He has also had good results from the use of chloral in the eclampsia of pregnancy. If it can be administered, chloral is preferable to morphine in maniacal conditions. In a case of singultus which had persisted for twelve hours, the administration of morphine internally failed of result. After forty-five grains of chloral had been given, the patient slept throughout the night. The following morning, shortly after awaking, the hiccough recommenced. Forty-five grains of chloral were again administered, and, after a sleep of several hours, the trouble disappeared. Not less to be recommended is the use of chloral in the sleeplessness of elderly persons, probably dependent upon beginning atheroma of the cerebral vessels. Small doses, about seven and one-half grains, are advised in the beginning.

The range of usefulness of morphine is more extended. To attain the best results the question of administration by the mouth, or subcutaneously, must be considered.

For the relief of pain, the result of irritation of serous membranes, morphine is only to be used subcutaneously. In the same way, the subcutaneous administration is to be preferred to internal administration in cases of convulsive and painful contractions of canals or cavities, the walls of which are usually composed of unstriated muscular fibre, be it uterus, gall-bladder or intestine. Especially in cases of severe gall-stone colic, should the suffering of the patient not be prolonged by giving morphine by the mouth, but the subcutaneous injection be immediately made. This method is also to be exclusively recommended in all neuralgias, whether severe sciaticas or trigeminal neuralgias or the lancinating pains of tabes. The author finally observes that in melancholia morphine, subcutaneously, affords rest and sleep, while chloral does not seem indicated. Thus, morphine is to be administered in melancholia, chloral in mania. For adults the dose is gr. ⅙ to gr. ¼. In cases of severe gall-stone colic and of melancholia, as much as gr. ⅓ has been used at the first injection. A not inconsiderable range of application belongs to morphine given by the mouth. This method is to be recommended in disorders of the mucous membrane, whether of the air-passages or of the intestinal canal. To relieve the cough of simple bronchial catarrh, as well as that of affections of the pulmonary parenchyma, morphine given internally has proved useful. It occupies the first place in case of gastric ulcer with much pain; in cases of diarrhœa, it gives as good results as opium; it is given with good results in dysentery, without the preceding administration of castor oil, until the tenesmus is relieved and the number of stools diminished. In the worst cases, gr. ¼, two or three times a day, will be sufficient.

The author recommends, in the cases of patients with convulsions and who are unconscious, particularly in the eclampsia of pregnancy, that forty-five grains of chloral in six drachms of water and syrup, be administered through a soft flexible œsophageal tube introduced through the nose. Better results are thus obtained than by injection into the rectum, as in the latter a portion of the injected fluid readily and frequently escapes.—*Memorabilien*, July 6, 1888; from *Centralblatt für die gesammte Therapie*, 1888.

On Sudden Death in Infants.—Dr. P. Grawitz, of Greifswald, records two cases in a recent number of the *Deutsch. med. Wochensch.* One child was eight months old, the other six months. The usual signs of death by suffocation were found *post-mortem*, and, in addition, a very large thymus gland in each case. It was satisfactorily proved in one case that the child was not suffocated; the other case was somewhat doubtful, and it was also shown that the children enjoyed perfect health up to a few minutes before death, which was preceded by sudden dyspnœa and cyanosis. Virchow, in his work on tumors, states that he possesses a preparation of an enlarged thymus, from a child who had died of asthma. "The thymus was so enlarged," says Virchow, "that I do not see how any one can deny that the dyspnœa may have arisen from its pressure." Only two such specimens are to be found in the rich collection of the Berlin Pathological Museum, which shows the rarity of this condition, taken alone. The question is of great medico-legal importance—*British Medical Journal*, July 28, 1888.

A Peculiar Reflex Manifestation.—Thomas, of Freiburg (Verslg. d. Südw.-deutsch. Neurologen u. Psychiater), described a peculiar reflex manifestation which he has observed in himself. Moderately strong irritation of the oral mucous membrane gives rise to a sensation of strangury and vesical tenesmus, which occurs even if the bladder is emptied immediately preceding the experiments.—*Wiener medizin. Pr.*, July 1, 1888.

Hot Water in Diseases of the Eye.—Connor (*Centralblatt für prakt. Augenheilkunde*) recommends baths of hot water as an excellent means of treatment in various disorders of the eye—from simple catarrh and phlyctenulæ to scleritis, iritis and hyperæmia of the retina. When, with the instillation of a mydriatic, the pupil fails to dilate sufficiently, hot water aids the action; in catarrhal and purulent ophthalmia, it limits the inflammation; in glaucoma and dacryocystitis, it diminishes pain. There are no contraindications to the use of hot water, which acts with varying efficiency according to the method of application. The author usually has a drinking glass filled with hot water, the patient so inclining the head that the affected eye is immersed. The water remains warm for a considerable period, so that the eye may be bathed for some time without discomfort.

If one so choose, he may add antiseptics to the water. This method has the advantage over poultices that its execution does not require an expert. The local action may be thus tabulated: 1. Contraction of the blood-vessels of the eye and of contiguous structures; the ophthalmoscope shows the retinal vessels contracted after such a hot bath. 2. The hot water washes away deranged secretions and excretions, and destroys the germs contained; the bacillus of anthrax, for instance, is destroyed by a temperature of 96° F.; many eyes can support a higher temperature. 3. The healing activity of the reparative tissue or protoplasm is stimulated. 4. The hot water acts directly upon certain conditions of muscular weakness or spasm.—*Memorabilien*, July 6, 1888; from *Centralblatt für die gesammte Therapie*, 1888.

A New Preserving Fluid.—Dr. T. M. Prudden gives the following formula for a new preserving fluid:

Water	1000 c.c.	(33 fluidounces).
Common salt	100 gm.	(3¼ ounces).
Saltpetre	25 "	(℥vj ℈j).
Carbolic acid	5 "	(77 grains).
Glycerin	15 c.c.	(℥iij ℈ij).
Amylic alcohol	50 "	(1⅔ ounces).
(or Ethylic alcohol	100 ")	(3¼ ounces).

Specimens should be first soaked in a strong brine and then placed in a large quantity of this fluid. He believed the mixture would be found to serve a useful purpose in the temporary preservation of gross pathological specimens, without changing their color or otherwise altering their general appearance. The mucous membranes were particularly well preserved in the fluid.—*Med. Record*, August 4, 1888.

The Use of Sozoiodol in Affections of the Nose and Larynx.—Fritsche, of Berlin, upon the recommendation of Lassar, has used sozoiodol in eighty-eight cases of rhinolaryngeal disease. The results, as given in the *Therap.*

Monatsh. for June, were good. The remedy was used in combination with potassium, sodium, zinc and mercury. The combination with the first two was used of normal strength; that with zinc, of one-fifth to one-tenth; and that with mercury, of one-tenth to one-twentieth. The best results were had in all catarrhal conditions of the mucous membrane of the air-passages, with a tendency to inspissation of the secretion.

In laryngitis sicca and in the dry forms of pharyngeal and naso-pharyngeal catarrh, in which the zinc preparations were used, the cure was complete in acute cases, while in chronic cases marked permanent improvement resulted. The secretion was first liquefied, then diminished. In cases of atrophic nasal catarrh, insufflations of the potassium and zinc preparations caused more marked improvement than other measures; the secretion losing its tenacity and the fetor diminishing. Cases of inveterate ozæna succumbed to the insufflation of the mercurial combination alternating with that of zinc, the local irritation immediately causing a copious, thin secretion, which persisted in greater or less degree, and was followed by disappearance of fetor. In hypertrophic rhinitis and rhinopharyngitis, partly with chronic thickening, the alternate insufflation of the three crystalline combinations proved most successful. With increased secretion the swelling of the mucous membrane grew less, and the erectile tissue contracted, so that respiration became correspondingly freer. The crystalline salts caused a rapid healing of wounds after the use of the galvano-cautery. Tubercular ulceration of the larynx and pharynx rapidly began to clear up and develop healthy granulations, particularly after the use of the zinc salt; complete cicatrization was not noticed, probably on account of the short length of time of treatment. Five cases of nasal and laryngeal syphilis, in part associated with gummatous affections of the velum and of the tongue, were completely cured by insufflations of the mercurial salt, together with mild internal mercurial medication.—*Wiener medizin. Pr.*, July 1, 1888.

Santonin and Santoninoxym.—COPPOLA (*Archiv. pl. Scienze med.*, vol. xi., 1887) shows by experiments upon dogs that santoninoxym, a crystalline substance of similar composition to and a product of santonin, in doses of fifteen grains given internally, does not affect the condition of the animals, while similar doses of santonin are followed by convulsions. The author proved in his own case and in that of others that santoninoxym appeared in the urine four hours after ingestion, while santonin appeared in half an hour. Santonin is thus more readily absorbed than santoninoxym and has slight toxic qualities. The anthelmintic effects of santoninoxym, as shown by clinical investigation, are like those of santonin, and the author believes that the former, constructed by Lanizarro in 1885, will ultimately replace the latter.—*Deutsche medicinische Wochenschrift*, July 12, 1888.

Retention of the Placenta for Seven Weeks.—DR. VARNEK, writing in the *Vrach* on the question of the management of retained placenta, mentions a case which occurred under his charge in the Basman department of the Moscow Artisan Hospital, which he thinks shows that, even when the placenta is found tightly locked up in the uterus several days or weeks after labor, there need be no necessity for recourse to such serious measures as were adopted by Schultze, who in a similar case performed abdominal section and extirpated the uterus. Dr. Varnek's patient was a married woman and had been attended by a midwife, who, after a great deal of very painful intrauterine manipulation, had assured her that she had got the whole of the after-birth away. The patient attempted, after the sixth day, to attend to her household duties. She was, however, very weak, and, as she grew worse and began to suffer from pain in the abdomen and back, she sought, a fortnight after the confinement, admission under Dr. Varnek. She was found to be in a low, weak, anemic state. The abdominal walls were lax. The uterus could be felt as a dense hard mass, extending up to the umbilicus. The external os admitted the finger, but the internal os was much too contracted to permit the cavity to be entered. There was but little discharge, and this was inoffensive. The patient was treated by warm vaginal injections of carbolized water (1 in 50), iodoform suppositories and the internal administration of ergot and ergotine. The condition improved slightly for a time, but in about a month from the time of confinement hemorrhage occurred, the temperature (which had been normal) rose, and shortly afterward the discharge became very offensive. Attempts were then made to examine and clear the uterine cavity. The internal os having somewhat dilated, a partial exploration was made, which revealed the presence of the placenta in a very hard, dense condition, firmly attached to the uterine walls. Persistent efforts, both with the fingers and with a sharp curette, failing to remove it and the patient being much exhausted by the manipulation for which she had been placed on the operating table, she was put back to bed and a prolonged irrigation with a 1 per cent. solution of carbolic acid ordered, a mixture of iodoform and glycerin having been first applied to the interior of the uterus. For the next few days irrigation was practised for from four to ten hours daily, the general condition improving. In a little more than a week a portion of the after-birth came away, which was entirely inoffensive, and the next day the whole of the remainder was got rid of. After this the patient made a rapid and complete recovery. Here the placenta had remained in the uterus fifty days after the confinement, and its ultimate removal is attributed by Dr. Varnek mainly, if not entirely, to persistent and prolonged irrigation.—*Lancet*, July 28, 1888.

Cystisin in Migraine.—From its power to contract the bloodvessels, KRAEPELIN (*Neurolog. Centralbl.*, 1888, No. 1) was led to use cystisin in the angioparalytic form of migraine. One twenty-fourth to one-twelfth of a grain of nitrate of cystisin, injected subcutaneously, particularly if given at the beginning of the attack, in a half hour relieved the redness, the feeling of oppression and the pain; only slight headache remained. Taken internally, it failed entirely; in spastic migraine it increased the pain.—*Centralbl. für klin. Med.*, July 7, 1888.

The Treatment of Bleeding from the Nose.—WADE recommends the expedient of Hutchinson. The hands and feet of the patient are placed in water as hot as can be borne. This will check the most obstinate epistaxis, without any ill consequences.—*Deutsche medizin. Wochenschr.*, July 19.

Gastroliths.—A curious and, as far as is known, unique case of gastrolith is recorded in one of the Dutch journals. A druggist had a circumscribed tumor in the epigastric region, the position of which varied on respiration, and which was tender on pressure. Medicines had no permanent effect upon it. Spleen, liver and kidneys were normal as to position and size. The appetite was very good and the bowels were regular. Vomiting of a small quantity of fluid containing mucus and bile, but almost always free from hydrochloric acid, occasionally took place. Nausea was constant, and it was said that hematemesis took place, but this was not actually observed. Gradual emaciation took place, the look became cachectic, and indolent swelling of the left supra-clavicular and axillary glands was noticed. The patient was examined under an anæsthetic and the stomach washed out, but exploratory incision was steadily refused. The diagnosis, according to the probabilities, was cancer of the stomach. The case ended fatally, and the autopsy showed that the stomach, which was of normal size, contained a concretion having the outline of the organ and almost filling it. At the pyloric end lay two smaller fragments of the size of hen's eggs. The weight of the tumor was 885 grammes (a little over 28 ounces). It had a strong fecal odor, but contained no skatol. No nucleus was present. Microscopic examination showed starch granules, cells containing chlorophyll, bundles of vessels, but nothing to determine the animal origin of the concretion. Chemical analysis showed that it contained 0.56 per cent. of nitrogen. It was observed that with the exception of the formation in Langenbuch's case described in 1884, which contained no hair, all the others observed in the human subject were composed more or less of hair. In the present case, on the other hand, the tumor was identical in constitution with the "food balls" of ruminants, and stood alone.—*Med. Press*, July 18, 1888.

Salicylate of Mercury in Gonorrhœa and Syphilis.—Schadek has tested the usefulness of the salicylate of mercury in gonorrhœa and syphilis. The drug, as used, is an amorphous, white, odorless and tasteless powder, of neutral reaction, with difficulty soluble in water and alcohol, more soluble in glycerin on the addition of soda or common salt, especially if the solution is warm.

He uses the following combination in gonorrhœa:

℞.—Hydrarg. salicylat. . . . gr. iij.
Sodii bicarb. . . . . gr. iij–gr. iv.
Aquæ destill. . . . . f℥ xvij.

In acute cases four or five injections were made daily. Only slight, transient irritation was occasioned. Improvement began after two or three days. Some cases of acute and subacute gonorrhœa were cured in fourteen to twenty-one days; others were not cured at all. The drug is not abortifacient.

In cases of syphilis the remedy was used externally, internally and subcutaneously. The author is reserved as to external use of the drug, as he has not used it sufficiently. Internally it was given in the following manner:

℞.—Hydrarg. salicylat. . . gr. xv.
Ext. et pulv. glycyrrhizæ
q. s. ut ft. pil. no. lx.—M.

Sig.—Three to six pills after meals; never on an empty stomach.

For subcutaneous, or rather intra-muscular, injection, the following suspension was antiseptically used:

℞.—Hydrarg. salicylat. . . gr. vj.
Mucilag. gummi arabic. . ♏ ix.
Aquæ destill. . . . . f℥ iv.

The injections were made at intervals of two or three days; they numbered six to twelve; in one case, however, sixteen were made. The number of cases treated was twelve.

The author summarizes the results as follows: 1. The salicylate of mercury is not less useful as an anti-syphilitic than the other preparations of mercury hitherto used; it is well adapted to the treatment of secondary syphilis; given internally, it causes a rapid disappearance of the milder symptoms and is useful in the after-treatment. Introduced intra-muscularly, the remedy has the power of completely removing the syphilitic symptoms. 2. The drug, unlike other preparations of mercury, causes no unpleasant local complications; in this respect, the salicylate may be considered the best preparation of mercury, because neither by internal administration nor by intra-muscular injection, although insoluble, does it ever give rise to symptoms of local irritation or of constitutional disturbance. 3. The external application of salicylate of mercury is most useful in various forms of syphilitic deposit, causing absorption and cicatrization. 4. It acts favorably in urethritis acuta and subacuta. The secretion of pus speedily diminishes and the other inflammatory symptoms disappear. The remedy is, however, not always efficient.—*Centralblatt für die gesammte Therap.*, July, 1888; from *Monatsh. f. prakt. Dermatol.*, 1888, H. 10.

Salol in the Diagnosis of Gastric Affections.—Dr. Ewald gives some results of experiments on the behavior of salol, performed at his request by Dr. Einhorn. Sivers and himself had shown that when salol was given, the appearance of salicylic acid in the urine was delayed by some agents and accelerated by strychnine and electricity, and that as decomposition of the salol could not take place in the stomach, the variations in the times of its appearance in the urine were due to its earlier or later passage from the stomach into the small intestine. Proof of this was also equivalent to proof that strychnine and electricity hastened the passage of food from the stomach. It had been shown before that when a moderate meal was taken salicylic acid appeared in the urine in from three-quarters to an hour after taking 15 grains of salol. It never appeared in healthy individuals in less than three-quarters of an hour, its appearance was sometimes delayed as long as an hour and a quarter. Dr. Einhorn's experiments showed a steady acceleration of the time of the appearance of the reaction after both faradisation of the epigastric region for ten minutes, and ext. strychninæ $\frac{1}{20}$ grain. Hydrochloric acid generally retarded the appearance of the reaction. It usually appeared more quickly when the stomach was empty or after a single glass of water. Carlsbad salts and bicarbonate of soda had a different effect in different individuals, sometimes retarding and sometimes accelerating the appearance of the reaction.

The bearing of the experiments on the motor functions of the stomach was of importance. Salol when taken during digestion was not absorbed from the stomach,

but from the small intestine, as an alkali was required for its decomposition, before which absorption could not take place. Strychnine and electricity, therefore, hastened the passage of the drug from the stomach into the small intestine. Alkalies had different effects in different persons, for the reason that in some they produced an alkaline condition of the contents of the stomach, and decomposition and absorption of salol took place from the stomach itself, thus causing an earlier appearance of the reaction; in the other cases, on the other hand, in which alkalinity was not produced, its passage out of the stomach was delayed. Hydrochloric acid not only did not favor decomposition of the salol, but by increasing the tension of the pylorus it delayed the passage of the salol into the small intestine. Other irregularities in the time of appearance of the reaction were traceable to the varying influence of the nervous system on the motor function of the stomach.—*Medical Press*, July 18, 1888.

Albuminuria in the Insane.—According to the observation of KÖPPEN, of Strassburg (Verslg. d. Südw.-deutsch. Neurologen u. Psychiater), albuminuria is frequent in those with mental disease and sometimes has important and intimate relations thereto. Albuminuria has been observed: 1. In mental disturbances following upon chronic nephritis; an increase of albumin in the urine is concomitant with a condition of stupor and prostration, while a diminution is attended with clearness of mind. 2. In psychoses having their origin in arterial sclerosis. 3. In various forms of delirium, in which the stupor and mental disturbances increase in the same degree as the albumin in the urine. The albumin appears in its ordinary form or as propeptone. Köppen concludes that the albuminuria is caused by certain, yet unknown cerebral influences.—*Wiener medizin. Presse*, July 1, 1888.

Mercurialization in Lying-in Women.—DR. ROBERT BOXALL, at a late meeting of the Obstetrical Society of London (*Lancet*, July 14, 1888), read a paper on the "Conditions which Favor Mercurialism in Lying-in Women, with Suggestions for its Prevention." The question was debated under two separate headings—(1) increased absorption, (2) defective elimination. Under the first head, the site of absorption was discussed; the question whether the solution obtains entrance to the cavity of the uterus when the uterine tube has not been employed was debated, and an experimental investigation undertaken, with a view to determine the point, was related. It was suggested that absorption not infrequently occurs inside the uterus, even when the uterine tube has not been employed, but that it may also take place through the lacerated surfaces of the cervix, vagina and perineum or even through the intact mucous membrane. Reference was made to the experimental research conducted by MM. Doléris and L. Butte, which bears on this point.

With a view to diminish the risk of absorption, it was suggested (1) that not only should care be exercised to obtain contraction of the uterus, but that it should be also carefully maintained, and, above all, that the douche should always be given at such a temperature as will stimulate the uterus to action; (2) that the douche should invariably be administered in the supine position, the uterus at the same time being supervised by one hand placed on the abdomen; (3) that, when the administration is completed, the precaution should invariably be taken of ascertaining that the uterus is contracted by palpating the abdomen, and, if distended, the fundus should be squeezed like a sponge in the palm of the hand and at the same time should be depressed, with the object of evacuating the vagina; and (4) that the surfaces of lacerations about the external orifice should be brought together, and any abrasions which remain should be coated with some material impervious to the solution. Under the second head, the relative eliminative power of the different excretory organs was discussed and especial attention directed to the condition of the kidneys and intestine. The following suggestions were offered: (1) That chronic nephritis, and probably also those changes which occur in the kidneys during pregnancy, may, by diminished elimination, produce an accumulation in the septum; and (2) that the intestine possesses an equal if not a greater eliminating power than the kidneys. With a view to obviate the risks arising from defective elimination: (1) That when the kidneys are affected the sublimate douche should not be employed, or, if used, extreme caution should be exercised; (2) that a free watery flow should be promoted by the kidneys, and that especial care should be directed to this point in hot weather; and (3) that the bowels should be evacuated daily, either by salines or by the administration of such agents as produce copious and loose stools. A tabulated series of eleven cases which presented symptoms of slight mercurialism was appended, and also a fatal case of mercurialism narrated.

The Mechanical Treatment of Erysipelas.—Instigated by the results which Barwell, Freer and Otto obtained by painting with white lead the skin at the borders of erysipelatous inflammations, WÖLFLER (*Mitth. d. Ver. d. Aertze Steiermarks*) undertook some experiments with the mechanical treatment of erysipelas. Concluding that merely painting the skin with varnish—to prevent the admission of air necessary to the life of the coccus of erysipelas—did not suffice to limit the extension of the inflammation, he attempted the simultaneous application of a compressing band, by means of water-tight material and a bandage, and by means of gutta-percha paper prepared with chloroform (traumaticin), but with varying results. Guided by the idea that the application of the bandages was operative less by exclusion of air than by mere mechanical compression, he concluded to replace the bandages and strips of traumaticin by simple strips of adhesive plaster about an inch wide. In four cases thus treated, the author obtained good results; in no case did the inflammation extend beyond the strips of plaster; while in twenty-four cases treated with traumaticin, extension took place in five. The strips must be applied to the healthy skin at the borders of the inflamed area. In severe cases of erysipelas of the head, the hair must be removed; in advanced facial erysipelas, the strips should be applied about the neck. The author ascribes the results of the method, which commends itself for its simplicity and convenience, to the compression, which interposes a greater obstacle to the spread and development of the coccus of erysipelas than the ordinary antiseptic or antacid methods hitherto in vogue.—*Wiener medizin. Pr.*, July 1, 1888.

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A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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Address, LEA BROTHERS & CO.,
Nos. 706 & 708 SANSOM STREET,
PHILADELPHIA.

SATURDAY, AUGUST 18, 1888.

THE CONTAGION OF PNEUMONIA.

Now that the treatment of pneumonia is receiving an unusual amount of consideration, it may be well to revert, briefly, to some of the other aspects of that disease; and perhaps it is just the fashion of speaking of it as "that disease" that has led to a great deal of aimless discussion concerning its treatment. It was a fancy of Wunderlich's to say that if we could see the lungs as we see the skin, we would have as many varieties of pneumonia as we have of eczema, and perhaps, if we followed up the thought, if we said "those diseases," rather than "that disease," the debating ground would become much plainer. Certainly the researches of the last few years into the causes of pneumonia have not tended to prove the unity of its causation, while all the weight of evidence goes to prove that a variety of microorganisms, of widely different orders, may produce pneumonias histologically similar. For this reason our knowledge of the etiology of pneumonia is far less than that of many diseases apparently more recondite, though it is even now possible to make some leading generalizations of interest and even to draw some conclusions of practical importance. This has just been done by NETTER, in a very thorough and comprehensive study (*Arch. gén. de Méd.*, Juillet, 1888), and, while his results do not depart essentially from what was known or generally believed, they are interesting from the application he gives them.

According to Netter, pneumonia is a transmissible, contagious disease. The contagion is due to specific, pathogenic microörganisms, which multiply in the diseased focus, and which, leaving the body in various ways, are especially abundant in the products of expectoration. Contagion from the sick is still possible, long after recovery, and for two reasons. The first is: the contagion resists desiccation and may thus preserve its activity outside of the body, on indifferent substances, to which it adheres. The second reason is that the contagion is not destroyed in the patient after the termination of the disease, as are most infectious germs. Long after recovery, perhaps indefinitely, the subjects of the disease have in their mouths active germs, and this activity explains the great number of recurrences in pneumonia and the occurrence of multiple outbreaks in one family or house. The importance of these views, if correct, must be very great, and their bearing on prophylaxis must be of prime importance.

In regard to isolation, great advances have been made in late years over the views formerly entertained. Netter does not believe that a rigorous isolation is necessary in pneumonia. The relatives should not be allowed to pass the night in the same room with the sick, much less occupy the same bed. The danger of the well using the handkerchief of the sick, or *vice versâ*, is not entirely imaginary. In hospitals, cases of pneumonia should not be in small wards, or, if so, should at least be alone. The contagion is but feebly diffusible, and all the cases published show that contagion is especially liable to occur in small rooms badly aired. It is particularly necessary to avoid exposing patients with typhoid fever, acute exanthemata, acute affections of the respiratory tract, nephritis and diabetes to the danger of pneumonia. The tuberculizing influence of hospitalism, in these conditions, is well recognized, and it is quite as true that the diseases named favor the development of pneumonia.

The sputa, being the habitual if not the only vehicle of contagion, must be disinfected. So far as our present knowledge goes, corrosive sublimate is the best means we have for this purpose. In hospitals having disinfecting apparatus, the clothing and linen of cases of pneumonia should be submitted to the same process as in other contagious diseases. Other indications might be drawn from the modern idea of the persistent activity of germs in the mouths of recovered persons, though this is evidently a subject too new for profitable discussion.

These views we believe to express all that can at this time be safely concluded from the study of the microbic origin of pneumonia. Before we can dogmatize about treatment, it would be well to wait, not only until our knowledge of causes is greater, but even until we have made a more careful clinical study of the natural history of the disease than has yet been done.

THE COLLECTING OF STATISTICS, AND THEIR VALUE.

Hunting, when the object sought for is difficult to find, grows in interest, especially in matters of science, with the scarcity of the object to be discovered; and each new success adds to the satisfaction of the investigator. Tastes in science differ to such a degree that what may be the delight of one man may be an incomprehensible passion to another. If the heart be not in the work, the labor is simply drudgery, and the satisfaction lies only in getting through with it.

It is easy to comprehend the interest that is taken in the discovery of the remains of an extinct animal and its restoration to form, so as to show its size and peculiar characteristics, for many who have little taste for natural science, experience a certain degree of pleasure in looking at the mounted skeleton; but it is not so readily understood how a man can take pleasure in a lifelong study of the family of bivalve shells, or of butterflies and moths, or of the less attractive beetle and spend his days in collecting thousands of specimens. Many of the *lepidoptera*, it is true, are beautiful in the delicate colors of their plumage, for the butterfly has feathers as well as the gorgeously tinted humming-bird; but where are the attractions of beauty in the *coleoptera*, except in the few blue, green and golden beetles? An astronomer of this city, long since dead, developed in youth a passion for mathematics and later in life a love for the study of the starry heavens, and chemistry; but he could never comprehend how any one could find an interest in entomology and, in fact, felt almost a contempt for what he denominated a "bug-man." One man regards as dry and uninteresting a branch of study that is the delight of another. We are born with certain tastes, which are developed by opportunity, and the more decided is the innate passion, the more pleasure is there in its cultivation.

Collecting surgical statistics is a dull, tiresome work to one whose aim is to find the cases contained in books and journals and then consider his labor completed; but to another, whose real work begins where that of the former ends, the labor is one of satisfaction, if not of decided pleasure. In the cause of science and humanity he disregards all difficulties, and as these may increase before him, they only stimulate him to make his record thorough and complete. *Perseverantia vincit omnia* is his motto, as it was with the celebrated anatomist, Hyrtl, who, convinced in his own mind that it was possible to prepare a certain form of injected work, persevered with specimen after specimen until, upon the fortieth trial, he achieved success.

A tabular record should represent not only the cases that have been published, but, also, all that can possibly be collected by correspondence. It should always be arranged chronologically. If an operation is to improve in the percentage of its successful issues, it is important that the cases reported should be presented in the order of their occurrence and that the causes of increased success should be specially noted in the explanatory text. There is very little value in a statistical table that simply states how many patients survived and how many died. It is desirable to know why one lived and another died; whether death was due to a prior condition of disease or directly to the operation; what were the pulse, temperature and general health of the patient immediately before the knife was used; what increase of danger was due to delay in operating; what special method of operating was followed in each particular case; and which form of operation was attended with the least measure of fatality.

The best records are usually those which are confined to the country of the investigator; but not always so, for petty jealousy may sometimes refuse to a neighbor what will be granted to a distant correspondent—we might give several proofs of this fact that have occurred under our own observation. Working by correspondence is most effective and agreeable when two or more, each in a different country, are making investigations and exchanging notes. Thus the first comprehensive Porro record was prepared in Philadelphia and Vienna, and the second in America, England and Italy. As many as five nationalities have been represented in one record, and at present the Sänger Cæsarean method is being investigated by an American, a German and an Italian, all working to the same end and simply with a view to reduce the mortality of an operation long regarded as one of the most fatal in surgery, by disseminating a knowledge of what has already been

accomplished in careful hands. Making searches in a foreign land can readily be carried out, and unpublished cases may often be more easily obtained than in our own country. Few men know how to record accurately their own operations, and some important points will often be left out, even by the best. These must be ascertained by letters of inquiry, in the sending of which there need be no hesitancy, as replies are usually given promptly and courteously.

It is rarely safe to accept, as correct, the work of other statistical writers. The disposition to save trouble, by accepting the data of earlier investigators, has kept in existence errors of long standing, which are now so firmly established that it is almost impossible to get rid of them; such are some of the early fabulous cases in obstetrics and abdominal surgery, as well as others of more recent date. What may be termed student-made researches are apt to contain numerous errors, such as are exhibited to a marked degree in the tables of Dr. Fleetwood Churchill. Hurriedly made collections are generally imperfect. Years have been, in some instances, required for making a satisfactory private research, and, thereby, cases long hidden away have been brought to light for publication.

The following rules will fill all the reasonable requirements of statistical work:

1. A tabular record should be prepared before the general text is written, and the latter should be based upon the facts taught by the former.

2. It is safer to prepare this record *de novo*, than to make it a continuation of the work of a possibly inaccurate predecessor.

3. The cases should be arranged chronologically, and the tabular headings should represent the important facts of each case and operation.

4. Attention should be specially given to the unrecorded cases, which can only be obtained by correspondence, often perseveringly kept up.

5. The record of each case should tell, if possible, the reason for recovery or death; and whether the result was due mainly to the prior condition of the patient, or to the operation.

An epidemic of yellow fever has developed at Jacksonville, Fla., within the past ten days. People are leaving the city by every known means of exit, but these avenues are being rapidly cut off, and the city already is practically shut in on all sides. Fumigating and inspecting stations are being established under the direction of Surgeon-General Hamilton at all points necessary to make complete the cordon intended to protect Georgia and the surrounding States, which have declared a rigid quarantine against Florida. All infected bedding and clothing is ordered to be burned. The city itself is being depleted, and a camp of refuge for the well, in charge of Dr. Guitéras, of the U. S. Marine Hospital Service, has been established at Bourgoyne, thirty-six miles west of Jacksonville, on the Savannah, Florida and Western Railroad, the National Government supplying the tents. The sick will not be allowed to remain there, but will be sent back to Jacksonville for treatment.

The committee of the German Chirurgical and Berlin Medical Societies for the establishment of a Langenbeck memorial, has issued an appeal for contributions. The memorial is to consist of a building for the purposes of medical societies and the collection of scientific works. The late Emperor was at the front of the movement, as well as the Empress Augusta.

The Barcelona Academy of Medicine and Surgery has offered the Gari Prize of 1500 marks ($375) for the best essay upon The Pathogenesis of Gonorrhœa (its Clinical Varieties, Complications, Prophylaxis, with Drawings). The paper must be written in Spanish, French or Italian, accompanied with the usual motto, and handed in before June 30, 1889.

The distinguished anatomist, Prof. Wenzel Gruber, on account of his health, has given up his work in Russia, and left St. Petersburg, to take up his residence in a milder climate. Setchenow, Professor of Physiology at the University of St. Petersburg, upon the completion of thirty years of teaching, will also shortly withdraw from the University.

The Pennsylvania and Maryland Medical Union meets this year at Birmingham Park, Chester County, Pennsylvania, on August 30th. Addresses will be delivered by the President, Dr. Rouse, of York, and others.

The Mississippi Valley Medical Association meets at St. Louis, September 11th, 12th and 13th next. The Society extends a cordial invitation to all members of the profession to attend its meeting. Arrangements for special rates are being made. The first day will be given to the discussion of abdominal surgery; the second, to infant feeding and some obstetric subject. The third day will be taken up with

volunteer papers and a discussion on some neurological subject.

The authorities of the University of Montpellier have determined to celebrate the sixth centenary of the foundation of the University, at the commencement of the scholastic year, 1889–1890, and foreign universities will be invited to send delegates.

A list of Chinese medicines, printed for the use of the customs officers of the Treasury Department, reminds us of the strange pharmacy of the mediæval period in Europe. They are imported chiefly for the use of the Chinese doctors of the Pacific slope, and include such alleged substances as tigers' bones, rhinosceros' horn, elephants' gall, asses' glue, snake-skins, fowls' gizzards, dried silkworms, crabs' eyes, dragons' teeth, hedge-hogs' skins, fossil crabs, fossil teeth, horse-tails, straw, glass, cow-hair, Job's tears, "insects of nine smells," puff-balls, ground blood, cows' knees, tree-bugs and centipedes.

At a recent session of the County Court, at Pittsburg, an interesting case was decided in regard to the amount of a bequest to the Hospital for the Ruptured and Crippled at New York City, the gift being that conveyed by the will of Mrs. Alice B. Schoonmaker. The question at issue was to determine whether the amount of the donation was two thousand or ten thousand dollars. The decree of the court awarded the larger sum to the hospital.

There are 16,930 practising physicians in England, a proportion of 1 to every 1642 inhabitants; and an increase in number of 21.7 per cent. since 1881. The largest number is found at Brighton, where there is 1 physician to 727 persons; next comes London with 1 to 939.

Prof. Salvatore Tommasi died at Naples, in his seventy-fifth year. He was equally distinguished as a physician and teacher. Tommasi was born in 1813 and graduated in medicine in 1838. He was made professor of internal pathology in 1844, which position he lost in 1849 through political causes. After a sojourn on the Continent, he studied physiology and clinical medicine at Turin. Here he completed his principal work, *Manuale de fisiologia*, which ran through three editions. In 1865 he became professor of the medical clinic at Naples, after having occupied the same chair at Pavia for five years.

Prof. Krafft-Ebing, of Gratz, will succeed Prof. Leidesdorf in the conduct of the Insane Clinic at Vienna.

REVIEWS.

Cholera and Water in India. By M. C. Furnell, M.D., F.R.C.S., Companion of the Indian Empire, Fellow of Madras University, late Surgeon-General and Sanitary Commissioner, Madras, etc. 8vo. pp. 45. London: J. & A. Churchill, 1887.

This is a popular lecture delivered at Madras in 1882, in which the author cites facts in support of the statement that water is the chief means by which cholera is spread, especially in India, and that on account of the *peculiar treatment* of water in India that country is constantly subject to the most terrible epidemics of this scourge. The experience of towns which have abandoned polluted water is presented as proof of the proposition that a pure and uncontaminated water supply is the thing most essential in conferring immunity from this disease. The lecture closes with practical suggestions on the water-supply of India.

The Physicians' Leisure Library. Number 7. The Modern Treatment of Pleurisy and Pneumonia. By G. A. Garland, M.D. George S. Davis, Publisher.

Although we are more than ever convinced of the difficulties and dangers involved in making books on treatment, to the exclusion of pathology and diagnosis, we must admit that in the present instance the author has so combined a judicious selection of the material and an attractive style as to furnish a very readable volume. Nor has the author omitted all mention of diagnosis. Under the heading "thoracentesis" there is a description of some of the diagnostic features of pleural effusion. Pathology is so far represented that as much space is devoted to the etiology of pneumonia as to its treatment, though it must not be supposed that the treatment recommended is based on the advances in pathology here considered. We rather wish the author had illuminated that other dark chapter in medicine, the etiology of pleurisy. Those who wish a clear and concise guide to the treatment of pleurisy and its complications, and a short account of the various forms of treatment of pneumonia, not all of them "modern," will find what they wish in this volume. The proof-reading would bear improvement, the names of foreign journals being incorrect wherever there is the possibility of error.

Proceedings of the New York Pathological Society for the Yeay 1887. By John C. Peters, M.D., Editor. Printed for the Society.

The most important part of these proceedings is that taken up by the Middleton-Goldsmith lectures of Dr. M. Allen Starr, on "Multiple Neuritis and its Relation to Certain Peripheral Neuroses." Beside this there is the usual abundance of reports and papers on anatomical specimens and other subjects of pathological interest. From the scope and object of the periodical medical press it seems of doubtful economy to compile a volume of proceedings from journal reports alone.

SOCIETY PROCEEDINGS.

CONGRESS ON TUBERCULOSIS OF MAN AND ANIMALS.

Held in Paris, July 25 to 31, 1888.

WEDNESDAY, JULY 25TH.

(*Specially reported for* THE MEDICAL NEWS.)

The Congress on Tuberculosis was opened in the hall of the Faculty of Medicine of Paris.

Prof. Chauveau, President of the Organizing Committee, was elected president of the Congress, with Profs. Villemin and Verneuil as vice-presidents.

PRESIDENT CHAUVEAU delivered the opening address, in which he gave an historical sketch of the recent progress which has been made in the study of tuberculosis, and which has resulted in its being considered as an infectious disease. The infectious nature of tuberculosis, which had been suspected by Morgagni, Andral and Laennec, is to-day, since the researches of Villemin, Koch, etc., a recognized fact. To-day the relation between human tuberculosis and bovine tuberculosis is also a recognized fact, and the possibility of the transmission of tuberculosis from animals to men is of no slight importance.

PROF. CORNIL, of Paris, presented a paper on

TUBERCULOSIS OF MUCOUS MEMBRANES.

One of the most important points to-day, he said, is the penetration of the tubercular bacilli by their simple contact with the mucous membrane. For the penetration of bacilli through the mucous membrane it is not necessary that the membrane be the seat of fissures, lesions or excoriations. All that is necessary is that the virus should be in contact with the mucous membrane. This results from the experiments of Chauveau, Villemin, Parrot, etc. These last experimenters have produced tubercular intestinal lesions in animals only by the ingestion of milk containing bacilli, or even cultures of these bacilli. MM. Tappeiner and Schottelius have also determined, by inhalation from liquids containing tubercular matter, tubercular lesions of the lung.

M. Dobroklousky, who has followed these experiments, has found that fifteen days after the ingestion of bacilli we find tubercles visible to the naked eye, and no trace of diarrhœa in those animals. The superficial epithelium was perfect. Peyer's patches are swollen, and between the cul-de-sac of Lieberkühn's glands we find accumulations of lymphatic cells. The lymphatic ganglia of the mesentery are the first to show tubercular lesions. On the fourth day accumulation of cells could be seen, and well-defined tubercles on the sixth day.

This year Prof. Cornil has studied several tubercular uteri; two of them belonged to old women. In these cases the sexual contagion is quite problematic; in one of them the tubercular lesion was localized in the neck alone, and the histological examination has shown some very characteristic tubercular granulations. The result of this examination, and the seat of the granulations beneath the epithelium in a woman having no pulmonary or peritoneal manifestations, made one believe in a tuberculosis due to sexual contagion. We have no proof of this, but this fact leads us to consider whether, as these tubercles were superficial, they were not due to the penetration of the bacilli from the surface. To establish this fact, Cornil introduced into the vagina of female rabbits, by a glass rod with a rounded extremity, so as not to wound the vagina, two or three drops of tubercular bacilli culture. These different animals were sacrificed, some six, twelve, twenty-four and thirty-two days after the operation, for the purpose of examination. For the first few days the lesions of the neck are those of a catarrh of the neck, great quantity of lymphatic cells, free in the cervical cavity or situated in the glands; a few bacilli are found amongst these cells. On the fifteenth day we see already the formation of small microscopical tubercular follicles beneath the normal epithelium; these small tubercles are immediately beneath the epithelial cells at the free extremity of the villosities or on a level with the glandular culs-de-sac or depressions of the arbor-vitæ. Thirty-two days after inoculation the tubercles can easily be seen with the microscope. This shows that a very small quantity of virus, introduced without any traumatic lesions, will produce tubercular lesions similar to those he had observed in the women. He believes that tubercular infection of the uterus is possible by the genital passage by a very small quantity of tubercular sperm.

We must observe that the epithelium of the neck is formed by a very superficial layer of cells, and that, like the intestinal mucous membrane, these cylindrical cells are easily penetrated, and do not hinder the penetration of liquids and foreign bodies like the stratified pavement epithelium. In this respect, of all the genital mucous membranes of men and women, that of the uterus is the one that opposes the least resistance. The pavement epithelium of the urethra, vagina and bladder is not altogether protective against the bacilli, for we have seen tubercle bacilli penetrate, with lymphatic cells, the mucous membrane of the pharynx; but this membrane was full of tubercles and also inflamed: the epithelial cells were separated "on account of the passage of these migratory cells, and this was the open path for the bacilli."

PROF. NOCARD, of Alfort, then read a paper on

THE DANGERS OF THE MEAT AND MILK DERIVED FROM TUBERCULOUS ANIMALS.

This question seems only to have occupied the mind of hygienists since the publication of the works of Chauveau, Gerlach, Klebs, Bollinger, etc., who have all shown that the meat and milk of tuberculous cows could be virulent; also since Toussaint demonstrated that in a tuberculous cow the blood, urine, tears and vaccine are as virulent as the caseous matter of tubercles.

The milk is only virulent when the tubercular lesions have invaded the glandular tissue; but it is a very difficult matter to recognize tuberculosis of the mammary gland in a cow and at the beginning of the disease, as it also is for a veterinary surgeon to affirm that a gland is not infiltrated with tubercular granulations; one must deal with the tuberculous cow as if the mammary gland was always tubercular. This is the result at which the committee on epizootics had arrived, and the sale of milk from tuberculous cows was forbidden, and only allowed to be given to animals after it had been boiled. In large cities we must never give raw milk, and must always tell the mother to boil the cow's milk before it be given to children. If sometimes it appears necessary to use raw

milk, he recommended the use of goat's milk, for he had never heard of this animal having contracted tuberculosis.

According to the works of Toussaint, it appeared that tuberculosis was a disease in which every part of the diseased organism contained in it the germ of the affection. Bouley admitted this view as well as the International Veterinary Congress of 1883; hence there was no hesitation possible, and every tubercular animal being a public danger was to be destroyed. In 1885, however, Arloing obtained his opinion from the Congress that the meat of a tuberculous animal should be discarded only when tuberculosis had become generalized and had extended beyond the glands in communication with the diseased part.

The Council on Epizootics has obtained an order from the State Council that tuberculosis should be considered as an infectious disease and assimilated to carbuncle. Every diseased animal is to be placed under the care of a veterinarian, isolated and sequestered; the meat to be excluded, if the disease has become a general tuberculosis. The skin can be utilized if disinfected beforehand, and the milk can be given to animals, but must be previously boiled. These measures are quite sufficient, for the meat juice of tubercular cows is rarely capable of communicating the disease.

Out of forty guinea-pigs inoculated with one cubic centimetre of meat juice derived from twenty-one tuberculous cows, one only had died fifty-nine days after inoculation. These facts, compared to those obtained by Galtier, H. Martin, Vallin, Arloing, Chauveau, etc., establish the fact, that tuberculosis can become generalized, if a tubercle ulcerates and opens into a vessel, setting free the bacilli it contains.

From a series of experiments, he found that the meat juice of inoculated animals ceases to be virulent about six days after inoculation; the only bacilli that will multiply are those that are thrown in a part where the circulation is favorable to their multiplication (liver, lungs, glands) the others which are caught in the muscles are rapidly destroyed. His experiments are certainly not perfect, for in his inoculation, he poured into the system all the bacilli at once, while, if a tubercular ulcer opens into a vessel, these bacilli are gradually and continuously poured out; and the danger of generalization by the muscular tissue certainly continues much longer than by his experiments; still it is not to be exaggerated, for he has fed twelve little kittens on tubercular meat for many days, without one becoming tuberculous, and we all know the susceptibility of cats to intestinal tuberculosis. This experiment is especially interesting, because amongst the cows whose meat has been given to these kittens was the one whose meat juice, introduced into the peritoneum of the guinea-pig, had rendered it tuberculous, and the kittens had eaten more than one pound of this meat without showing any signs of the disease. He concludes that the meat of tuberculous animals can be dangerous under certain conditions, but is very rarely so. Whenever it is dangerous, it is so to a slight degree.

JULY 26TH—MORNING SESSION.

DANGERS PRESENTED BY THE USE OF MEAT AND MILK DERIVED FROM TUBERCULOUS ANIMALS, AND HOW TO PREVENT THEM.

M. ARLOING, of Lyons, thinks that we can arrive at the suppression of tuberculosis amongst animals by strict sanitary measures, if tuberculosis be inscribed as a contagious disease, and if, on the other hand, the use of tuberculous animals' meat be prohibited until we find a method to render it innocuous.

He differs from M. Nocard, who, on inoculating forty guinea-pigs with meat juice, had obtained only one diseased animal. He, on the contrary, in his experiments with Prof. Chauveau, had obtained one success on two animals, and Galtier five out of twenty-two. He admits that out of twenty tubercular cows, four are capable of transmitting the disease through the meat. M. Nocard maintains that the muscular tissue is capable of digesting the tubercle bacilli; it is, indeed, a general law, that the microbes rapidly disappear in the blood and muscles, but this is not reassuring, since the animal possesses a tubercular lesion which is capable of supplying bacilli to the muscles all the time, and we cannot affirm that meat at the moment of the death of the animal does not contain microbes.

The large animals are more dangerous, because they are not suspected. As to the cooking of the meat, it is not always reliable, for M. Chauveau and himself have heated to 158° F., for half an hour, tubercle bacilli neutralizing but not destroying them, and we know that underdone meat has not been heated beyond 122° or 140° F. For his part, he objects absolutely to the use of tuberculous animals before we have found a way to neutralize this meat; M. Galtier has tried salting without very satisfactory results. The sanitary measures must not only be taken in the cities but also in the country.

M. BANG, of Copenhagen, said that he had studied, since 1884, to what degree cow's milk is virulent when obtained from tuberculous cows, with a healthy mammary gland. Out of twenty cows two only presented virulent milk; in eight phthisical women never has the milk been found so. The danger is much greater when the milk comes from a tubercular mammary gland; and he did not think, like M. Nocard, that this affection is so difficult of diagnosis. It begins by a diffuse tumefaction of a part of the mammary gland, secreting first a normal milk, which later presents a yellow serum; the secreted liquid is rarely purulent. This affection is not very rare, as we meet with cases every year. Koch's bacilli he has found in the different preparations of milk.

As to the influence of heat on the tuberculous milk he finds, that if milk is heated to 122° to 140° F. only, no benefit is obtained; a higher temperature will destroy its virulence much more. In two series of experiments, tuberculous milk heated to 176° F. produced tuberculosis by inoculation in one case but not in two others. Heated to 185° F., milk was always rendered innocuous. To six rabbits he gave raw tubercular milk; all became tuberculous, four of them remarkably so; two other rabbits took the milk heated to 140° F., two took it at 149° F.; of these four, two only, one of each section, took the disease. Six rabbits who took it heated to 158° F., and two at 167° F., showed no sign of the disease.

M. BAILLET, of Bordeaux, said that his conclusions are far from being in accordance with those of M. Arloing, and rather resemble M. Nocard's. He certainly believes in the transmission of tuberculosis from animals to man, but he does not think it necessary to destroy the meat derived from any tubercular animal. At Bordeaux, out of 22,000 cattle only 40 were found tuberculous, and

out of these 40 only 15 had general accidents; while if we examine the official statistics we find that out of 250,000 inhabitants, 1000 are phthisical, hence the propagation from animal to man must play a very unimportant part.

His conclusions are: As there is no complete identity between the results obtained by accidental or experimental inoculation of tubercular products and those resulting from the direct ingestion of meat derived from subjects suffering from tuberculosis; that the penetration of the tuberculous virus through the digestive tract is an accidental fact, far from being demonstrated; and that it is not sufficiently demonstrated that the meat of fat animals, which have a few tubercular lesions or believed such, are capable of transmitting tuberculosis to man; and as it would be a great loss in a commercial point of view to suppress all these fat animals, he believes that, 1st. Meat obtained from tubercular subjects in whom tuberculosis has become generalized, ought to be discarded; 2d, that, as regards fat animals, during the life of which the existence of tuberculosis was not suspected, the suppression of the meat must take place only if the lungs, pleuræ and lymphatic glands show tubercular lesions; and, 3d, that, in the other cases, it is quite sufficient to suppress from use the organs only which are more or less affected by the disease, and the afferent lymphatic glands and neighboring muscular parts.

M. Butel, of Meaux, thinks that we have no right to look to the commercial view of the subject, but rather to the sanitary view; no half measures must be taken, for the danger is great; he cannot himself see why a difference should be made between animals affected by a local tuberculosis and those presenting a generalized affection. We cannot affirm that the meat is in a healthy condition. If we only use half measures; we observe that in Paris only 11 cattle are taken out 263,000. He held that the meat of phthisical animals ought always to be destroyed, and as to the milk, that boiling it is the safest preventive from infection through its medium.

M. Grissonnanche, of Aiqueperse, said that as bovine pulmonary phthisis is observed especially amongst cattle living in herds, it would be important to separate the animals that cough from the others; this would diminish the chances of contagion. The bovine cattle in his district live from four to five months in the open air, without being protected from rain. In the fall they are brought down from the mountains and placed in low hovels, well closed, where air can hardly penetrate; men even will live with them in those places, which are most favorable to contagion. Bovine tuberculosis being transmissible to different species of animals, one can say without hesitation, that it is as easily transmitted to man.

M. Veyssière, of Rouen, said that veterinary surgeons must possess a well-defined sanitary regulation, one there can be no two ways of interpreting. In case the Congress should not adopt radical measures in regard to tuberculous meats, it ought to specify accurately what lesions will forbid or allow the use of these diseased meats. Intestinal tuberculosis is not so very rare, as is generally supposed, and the influence of food is not to be disregarded in studying the etiology. He gave the following on this point. In Rouen, out of fifteen cases of intestinal tuberculosis in pigs, three of them came from a knacker and six from milkmen in the neighborhood of Rouen. On the other hand, he has observed in four years, four cases of tuberculosis of calves; two presented a general tuberculosis, two exclusively intestinal lesions. Is that not a proof that tuberculosis is often due to the food used? As to the appearance of the animals, we have to be careful; having seized a very fat cow, and having injected meat juice obtained from her, to two rabbits, they both died.

M. Spillmann, of Nancy, said that tuberculosis is very frequent on the Eastern frontier, and takes the contagious form; the cows are in bad hygienic condition, and they are carelessly exposed to contagion, for when one of them dies of the disease no precautions are taken. The mortality of cows from phthisis is thirty to forty per cent.; they are bought at a very low price and sent to the neighboring market, with all the danger of infection. The surest method to prevent such facts from occurring would be to require a certificate of origin, and to recommend the destruction of any diseased animal, presenting even localized tuberculosis.

M. Rossignol, of Melun, thought that the measures proposed by M. Nicard are amply sufficient, but these measures are never carefully applied on account of the resistance of the proprietor or the weakness of the veterinarian. To render them applicable, proprietors of diseased animals ought to receive a compensating indemnity; and the Congress ought to insist and demand of the Government, the consideration of this subject. As regards the milk, it is more difficult, for we cannot prevent a cattle-breeder from doing with it what he likes.

M. Guiraud, of Montauban, said that in his city, for the past six years, 63 phthisical cattle were found out of 15,473, or 4.7 per cent. About 4 animals out of 1000 are seized, but this proportion is not very correct, for the cattle-breeders kill these animals outside the limits of the city, and introduce their meat in pieces. He thought that all tuberculous meat ought to be suppressed; this winter he had seen a fat ox, which obtained a medal, and presented well-marked tubercles.

M. Moule, of Paris, had observed the frequency of tuberculosis in fowls; this tuberculosis seems to localize itself more particularly in the abdominal viscera, and particularly the liver; hence the danger of infection through this organ, which is often used in the preparations of certain dishes. For a fowl to be sold it ought to be alive, in good health; and if dead, ought to be quite fat, otherwise the viscera ought to be kept in the abdominal and thoracic cavities for examination.

M. Villain, of Paris, stated the method of procedure at the slaughter-houses of Paris; if tuberculosis is localized, and if the animal is fat, the meat is allowed for sale; when the diseased part is suppressed, the animal is entirely seized if there is a general tuberculosis; in a general way, the proportion of phthisical animals is 6 to 1000 in Paris.

Evening Session.

M. Siegen, of Luxembourg, had seen a great many tubercular animals at the slaughter-houses of Luxembourg, but has always found it impossible or difficult to distinguish between the two grades of local and general tuberculosis, and he preferred radical measures. He has also succeeded in producing tuberculosis in four pigs which were fed on meat coming from a tuberculous cow. The only way, according to him, to suppress the diseased meat, is to cremate the infected animals.

Dr. Robinson, of Greenock, did not believe in the half-way method of destroying only the animals present-

ing general tuberculosis; for the past fourteen years, during which he has been meat inspector in Scotland, he found that cases of tuberculosis in animals are rare; and where tuberculosis appeared, on first examination, to be perfectly limited, he found tuberculous lymphatic glands. He came to the Congress for the sole purpose of asking the most radical measures, namely, that, as he thinks it impossible to choose between tuberculous animals, they must all be excluded, even if indemnities had to be given to the proprietors by the government.

M. LAHO, of Brussels, also insisted on excluding all diseased animals, supporting his opinion by the fact that amongst all the cows which have been slaughtered in Brussels, more than 4 per cent. were tuberculous.

The discussion on the first question was then closed, and the President presented the following

PROPOSITION.

"It is necessary to pursue by all means, including an indemnity to the proprietors, the general application of the seizing and total destruction of all the meats obtained from tuberculous animals, whatever may be the specific lesions found in these animals."

This proposition was carried by the great majority of the members of the Congress. Three members only opposed it: MM. Nocard, of Paris; Laurent, of Bar le Duc; Corrado Massa, of Genoa.

HEPATIC AND PERIHEPATIC TUBERCULOSIS.

M. LANNELONGUE, of Paris, said that a few years ago, in a communication to the Academie des Sciences, he called attention to the perihepatic tubercular abscesses, an abscess but little known from a clinical point of view, and the nature and origin of which remained in the dark. He then thought that the liver surface would be one of the origins of these abscesses; since that time he has demonstrated three cases showing intrahepatic tuberculosis, which gives the explanation of certain perihepatic abscesses. The following are the cases:

Case I.—Boy, of thirteen years, had a subhepatic abscess, which had been opened, scraped and inferior border of thorax excised; two months and a half later he died from pleurisy. At the post-mortem, the seat of the trouble was in the liver. At that place a section showed a caseous hepatitis of nearly the entire right lobe; near the anterior border was a soft spot presenting a cavern, the size of a large chestnut, containing caseous, flocculent pus.

Case II.—Girl, of four years, suffered from a subhepatic abscess. This abscess was opened, scraped and the inferior border of thorax resected. At the post-mortem, the right lobe of the liver, opposite the subhepatic abscess, was the seat of two tuberculous abscesses, one of which was divided in two by a partition; the three pockets were filled with caseous pus.

Case III.—Girl, of two years, subhepatic tubercular abscess, occupying the epigastrium and the region of the left lobe of the liver; general symptoms alarming. To destroy completely the subhepatic abscess he resected the lower border of the left thorax. This abscess being well scraped, the liver appeared perfectly healthy, but, by pressing on the organ, he found that pus came out by two orifices distant from each other by one inch, both leading to a single cavity, about the size of a small nut, located in the middle of the hepatic tissue. The two openings were united by the aid of the thermo-cautery; but the child died four days later from general tuberculosis.

If we consider these three cases from an anatomical point of view, we find the existence of two forms of hepatic tuberculosis (outside of tubercular granulation): tuberculosis by infiltration or caseous hepatitis, and cavernous ulceration or tubercular abscess of the liver.

In a clinical point of view, hepatic tuberculosis has no particular signs so long as it is limited to the liver; when combined to perihepatic abscess we can suspect it, for out of seven cases of abscesses three times has he found a tubercular hepatitis the origin and source of these abscesses.

The treatment of the intrahepatic abscesses will only be a secondary stage of the treatment for the cure of perihepatic abscesses, as the diagnosis is too uncertain to be made at once. In these cases of abscess we must examine the liver carefully and evacuate it if necessary, and resect the lower border of the thorax, without rejecting, however, in limited and benign cases the injections of iodoformed ether.

ON AN ORGANISM DIFFERENT FROM KOCH'S BACILLI FOUND IN THE TUBERCULAR LUNG IN MAN.

M. SOLLES, of Bordeaux, said that this organism can be demonstrated first, by inoculation of rabbits with tubercular matter obtained from the human lung. These animals which have been inoculated die after a time, varying from four months to a year, of a disease quite different from tuberculosis, presenting constant and characteristic lesions and a special microörganism. Culture of the rabbit's blood always gives the same organism. By inoculation of this same culture to guinea-pigs and rabbits it produces in these the same pathological influence.

It is demonstrated in phthisical persons by the presence of these same organisms in the sputa and blood of phthisical persons. In sputa the demonstration is a very easy one; in the blood it is more difficult on account of the coagulation of fibrin; but the culture of the same blood on different mediums renders its presence certain.

This organism, which has been taken up to the present time for an insignificant bacterium, is not the tubercle bacillus of Koch; for it does not respond to Ehrlich's reaction as Koch's bacillus, or the one of leprosy. This microörganism looks more like the microbe of erysipelas. In a word, the infection of which he spoke presented the character of a true septicæmia associated with tuberculosis.

STUDY OF TUBERCULOSIS IN LIMOGES.

M. BOULLAND, of Limoges, said that in his city tuberculosis is very unevenly distributed. The poor quarters in the neighborhood of the river and the district occupied by porcelain workmen, the bronchi of whom are continuously irritated by the dust of porcelain clay, are those in whom tuberculosis is more prevalent. In a certain quarter where prostitution is very free, it is also extensively prevalent, which he attributes to contagion through the genital passages. He thinks that not only ought the prostitutes who suffer from venereal disease to be eliminated from those quarters, but also those presenting signs of pulmonary tuberculosis.

TUBERCULAR MENINGITIS IN THE ADULT.

M. Kalindero, of Bucharest, said that he was convinced that tubercular meningitis of the adult is often difficult of recognition; that in children we might have certain slight attacks which disappear and leave no trace; that in the adult these irregular forms are capable of originating certain forms of insanity. Finally, that meningitis of adults can be localized in certain convolutions and become chronic.

ON TUBERCULAR MENINGITIS DURING PREGNANCY.

M. Chambrelent, of Bordeaux, has had the opportunity to observe three cases of tubercular meningitis in pregnant women, at different periods of gestation, and to make the post-mortem examinations. He concludes that pregnancy does not seem to have a very marked influence on the progress of this disease; that the disease, even at its extreme period, does not seem to influence in any way gestation, or the health of the fœtus. He considers that we are entitled to produce premature labor when the woman has passed six and a half months, and the diagnosis of tubercular meningitis has been well established.

TUBERCULAR HEREDITY AND PREGNANCY.

M. La Torre, of Messina, from his researches, concluded that if the father is in a perfect state of health, we constantly shall see the fœtus arrive at a normal development and at the usual time, whatever may be the state of health of the mother. If now the mother is in a perfect state of health and the father, on the contrary, is in a poor condition, the fœtus will never reach in weight above five pounds. Alcoholism, syphilis and tuberculosis can influence the development of the fœtus; and in regard to this last disease, as a result of his experiments on guinea-pigs, he finds that the tubercular spermatic fluid is capable of rendering the ovule tuberculous. Hence, a tubercular father can transmit to his offspring, not only a poor, predisposing condition to the disease, but also the specific disease itself, and a general tuberculosis of the father can very well interfere with the development of the fœtus.

TUBERCULOSIS AND VACCINATION.

M. Degive, of Brussels, drew attention to the proceeding followed in Belgium to obtain pure vaccine virus. When vaccine virus has been obtained from a calf, prepared for that purpose, the animal is killed and a post-mortem made. If it is healthy and shows no trace of tuberculosis, the meat is allowed to be sold; if on the contrary it is tubercular, the vaccine derived from it is immediately destroyed. In less than two months sixty thousand persons have been vaccinated in Belgium without the slighest danger of contamination.

President Chauveau did not think these precautions necessary, admitting that in Paris such precedures were not followed—the vaccine virus is rarely tuberculous, it is very exceptional for it to be so; moreover, experience has shown that it is very difficult to inoculate tuberculosis on a superficial erosion. In presence of these facts it was not necessary to be so strict about vaccination, for we frighten away a good many people from being vaccinated at the expense of the health of the community.

CORRESPONDENCE.

WARNING AGAINST CHLOROFORM INHALATION IN CHILDREN.

To the Editor of The Medical News,

Sir: For more than eleven years I have placed great confidence in the ability of the tissues of children to resist the depressing effects of chloroform administered as an anæsthetic. Three days ago I was called to see a large, strong girl, between three and four years old, who had fallen upon a large pin, breaking off about one inch of it, which was deeply imbedded along the inner side of the right brachial artery, an inch and a half above the elbow. As the child would not permit any attempt at removal, I administered chloroform, which she strongly resisted. Having removed the stopper from a two ounce phial of the drug, I placed a folded handkerchief against the mouth of the bottle and overturned it twice, which was repeated a second time before the anæsthetic took effect. Afterward, upon examining the phial, it was found that less than one drachm had been employed.

Without the slightest warning symptom, just as an incision was made, there was a sudden blanching of the entire surface and not a drop of blood flowed. To my ear the heart sounds, as well as respiration, had ceased, the child seemed to be dead. Immediately its body was inverted, artificial respiration began, and ammonia applied to its nostrils. In about five minutes, which seemed much longer, an attempt at inspiration was made. Copious emesis occurred in about fifteen minutes, and in an hour the heart beat was rapid, weak and regular.

Charles Baum, M.D.

630 N. Broad St., Philadelphia, Aug. 14, 1888.

A VALUABLE REMEDY FOR DIARRHŒA.

In answer to an inquiry as to the administration of the remedy recommended for chronic diarrhœa, in The News of August 4th, page 139, M. C. L. informs us that the proper quantity of the chocolate tannin powder to be used is a heaped tablespoonful, which is to be cooked with milk for half an hour, and taken at the morning and evening meals. The quantity named makes a breakfast-cupful.

NEWS ITEMS.

Congress of American Physicians and Surgeons to be held in Washington, September 18th, 19th, and 20th, 1888.

The American Orthopædic Association announces the following preliminary programme:

The Modern Treatment of Chronic Joint and Spinal Disease, by Newton M. Shaffer, M.D., of New York.

Immobilization in Articular Disease.—Reports on the Treatment of Club-Foot by means of the Thomas Wrench, or the "T. T.," by V. P. Gibney, M.D., of New York.

Mechanical Treatment of Senile Coxitis, by Henry L. Taylor, M.D., of New York.

A Practical Point in the Treatment of Pott's Disease of the Spine, by A. B. Judson, M.D., of New York.

An Efficient and Inexpensive Method for the Mechanical Treatment of Pott's Disease, by C. F. Stillman, M.D., of New York.

Rest, in the Treatment of Chronic Joint Diseases, by John Ridlon, M.D., of New York.

Acute Epiphysitis in Infants, by Dillon Brown, M.D., of New York.

Remarks on Lateral Curvature and its Early Treatment, by Samuel Ketch, M.D., of New York.

Osteotomy for Anterior Tibial Curves, by DeForrest Willard, M. D., of Philadelphia.

Description of an Apparatus for Measuring any Inequality in the Lengths of the Lower Extremity, by T. G. Morton, M.D., of Philadelphia.

Hæmatoma Oris, as a Sign of Injury to the Spine in the Superior Cervical Region, by Benj. Lee, M.D., of Philadelphia.

Two Knee-Joint Excisions, by A. J. Steele, M.D., of St. Louis, Mo.

Report on Morton's Operation for the Immediate Reduction of Club-Foot, by H. Hodgen, M.D., of St. Louis, Mo.

Femoral Osteotomy, by Ap Morgan Vance, M.D., of Louisville, Ky.

A Case of Reflex (?) Valgus, by George W. Ryan, M.D., of Cincinnati, Ohio.

Remarks on the Operative and Mechanical Treatment of some Joint Diseases and Injuries; with especial reference to the Hip, Knee and Elbow Joints, with illustrative cases, by W. R. Whitehead, M.D., of Denver, Colorado.

Analysis of Treatment of Seventy Cases of Club-Foot, by E. H. Bradford, M.D., of Boston, Mass.

Bacteria in Ice.—Bacteria, it is now generally known, are not destroyed by temperature as low as the freezing point. At a temperature of 32° to 39° F. bacteria become dormant and are incapable of propagation, but retain their vitality. Experiments have shown that bacteria exposed to a temperature far below zero have, upon being warmed to 43°–54° F., been enabled to resume all their normal functions. It is, therefore, certain that ice frozen naturally or made by artificial processes from ordinary water may contain bacteria and germs. Dr. Carl Fränkel, of the Hygienic Institute, in Berlin, has made some observations in this direction, which have been published in the *Zeitschrift für Hygiene*. Dr. Bischoff, of Berlin, has also made chemical and microscopical examinations of the various kinds of ice, natural as well as artificial, for sale in Berlin. Many of the samples of ice thus examined were found to be as impure and unfit for use as the most impure and unwholesome drinking water. It was remarked that, while the greatest care is observed in the selection of wholesome drinking water, it is most astonishing how little thought or care is bestowed upon the more dangerous impurities contained in ice. The German government finally ordered the discoverer of bacteria, Dr. Robert Koch, to make an official investigation. The method of procedure was that of allowing a centimetre (16 minims) of ice to melt and cultivating the resultant water in gelatin. It was then found that seven specimens of ice, from as many different sources, contained in that quantity of melted ice, from 140,000 germs, the smallest number, to 880,000 germs, the largest number. It was thus conclusively shown that freezing does not destroy bacteria. The most remarkable thing was the varying results, but this can be accounted for by the method of examination and the time thus allowed to elapse between the melting of the ice and the examination. Enough has been shown, however, to prove that American experiments have been fully corroborated by the best European authorities.—*American Analyst*, July, 1888.

The Pharmaceutics of Antipyrin.—Antipyrin, although a fairly stable chemical body, undergoes decomposition in contact with certain substances, occasionally with an undesirable result. One of the most noteworthy incompatibles is the spirit of nitrous ether. This mixture gives rise to a green color, and although the precise nature of the resulting compound is not known, a child suffering from a slight fever, to whom it was given, died shortly after with symptoms strongly pointing to poison. It is, therefore, highly desirable that this incompatibility should be made known as widely as possible.—*Medical Press*, July 28, 1888.

A Princely Physician.—Prince Louis Ferdinand, of Bavaria, has passed the final medical examination qualifying him to practice as a physician. He is the second member of his family who has joined the medical profession.

Erlenmeyer's Morphia Disease.—Dr. J. B. Mattison, of Brooklyn, is translating Erlenmeyer's *Morphia Disease and its Treatment*, the latest and largest work on the subject, which, with notes and comments by the translator, will be brought out during the coming autumn.

CORRIGENDUM.

Resorcin in Summer Complaint.—Dr. Brooker writes to the *Maryland Medical Journal* that the dose of resorcin used at the Thomas Wilson Sanitarium (see The Medical News of July 28, page 99) is one-half grain and not two grains, as stated. As resorcin is a toxic remedy, the larger dose might lead to trouble.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 7 TO AUGUST 13, 1888.

Lauderdale, J. V., *Major and Surgeon* (U. S. Army).—Promoted to Surgeon U. S. Army, July 28, with rank of Major, to rank from July 3, 1888.

Cowdrey, Stevens G., *Captain and Assistant Surgeon.*—Granted leave of absence for one month,—*S. O. 77, Department of Texas*, July 25, 1888.

Appel, Daniel M., *Captain and Assistant Surgeon.*—Ordered to Fort Bliss, Texas, for temporary duty.—*S. O. 77, Department of Texas*, July 25, 1888.

Mason, Charles F., *First Lieutenant and Assistant Surgeon* (U. S. Army).—Reappointed July 28, 1888, to rank from July 2, 1888. Reported for duty at Fort Washakie, Wyo., August 2, 1888

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING AUGUST 8, 1888.

Whitaker, H. W., *Passed Assistant Surgeon.*—Detached from the "Mohican," to proceed home and wait orders.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, AUGUST 25, 1888. NO. 8.

ORIGINAL LECTURES.

THE TREATMENT OF LUNG CAVITIES.

An Address Delivered before the Lehigh Valley Medical Association, at Easton, Pa., August 15, 1888.

BY THOMAS J. MAYS, M.D.,

PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC.

THE subject of the address which I have the honor of delivering before you to-day is that of the treatment of lung cavities. I selected this topic because the cavity-condition is so frequently met in every-day practice; and because I believe that the prevailing opinion that the cavity-stage of phthisis has, in most instances, passed beyond the bounds of human control is not only incorrect, but is prejudicial to the interests of both patient and practitioner; and I trust that before I have finished I shall be able to give you reasons for believing that patients thus affected have not necessarily passed beyond the curable stage of this disease, and that they are far better off than those suffering from an infiltration which is bound to lead up to this condition.

Let us now, at the very outset, briefly study the causes which produce and the physical features which accompany a pulmonary cavity. Probably the earliest and most direct cause of this condition, in the great majority of cases, is a proliferation and an accumulation of epithelial elements in the air cells or pulmonary alveoli—the result of a catarrhal process extending down the bronchial tubes.

On account of this rapid multiplication and accumulation of epithelial cells, the small bronchial tubes and air cells become blocked or filled up, and the whole results in a consolidation, or what is commonly called a catarrhal pneumonia. If the process of expectoration of this catarrhal material would keep pace with the rapidity of its formation, neither catarrhal pneumonia nor catarrhal phthisis could ever occur. One reason why bronchitis is a less dangerous disease than pneumonia is the fact that in the former the catarrhal secretion can be readily expelled and an accumulation avoided by the act of coughing; whilst in the latter disease, this secretion takes place so low down in the smallest bronchial ramifications and in the alveolar spaces that coughing rather serves to hinder than to enhance the process of expulsion.

In this condition, therefore, the epithelial proliferation continues, the accumulation goes on, a group of air cells here and another there clogs up and they are bound together in a mass; and the mechanical pressure thus produced gradually interferes with the vascular supply, until finally the whole affected area is entirely cut off from its source of nutrition, viz., the blood. Of course, it is quite readily conceived that if this state of things continue for any great length of time, this isolated spot must perish sooner or later; and this is precisely what happens. The moisture which it contains leaves it by diffusion, the whole becomes a comparatively dry mass of albuminous material, and now begins to undergo a cheesy degeneration. This process is analogous, in every respect, to that which takes place in the manufacture of ordinary commercial cheese. Here it is well known that before the albumen of the milk becomes cheesy, the serum must be separated from it. The cheesy nodule in the lung begins to soften from the centre to the periphery, and so soon as communication with a neighboring bronchus is secured the whole mass is expelled and a cavity is left behind.

These then are the physical features which characterize the evolution of a lung cavity in a large number of cases of pulmonary consumption. So far, the process has been purely inflammatory, and is known as the yellow or pseudo-tuberculous variety of consumption; but during caseation a specific virus is formed, which has the power of generating true tubercle; and while it is true that genuine tuberculosis accompanies and follows excavation, it is also true that it occurs less frequently, and if it does exist, is less extensive, than is usually supposed.

After a cavity is once formed, it pursues one of the following courses: (1) It may retain its original size and continue to secrete pus, and may become lined by a secreting membrane; (2) it may enlarge by further excavation of its walls or by uniting with other cavities in its immediate neighborhood; or (3) its walls may contract and its sides come together and cicatrize.

From a therapeutic point of view, which is our chief object to-day, a pulmonary cavity must be regarded in the light of two cardinal principles: (1) that it, as well as the disease of which it forms a part, is inherently a process of necrosis, or of mortification; (2) that not only its size but its existence depends on the degree of local and constitutional resistance. The growth of a lung cavity may, in all its essentials, be compared to a chronic ulcer of the lower extremity. How often do we see in these affections a conflict between healthy and diseased action? The border-line advances and recedes, making the ulcer appear large at one time and small at another, and this in direct correspondence with the local and constitutional strength or weakness of the patient. Such a course is frequently, if not universally, pursued in the formation and extension of a lung cavity. In some phthisical patients, you find that the lung tissue melts away like snow under the burning rays of a summer's sun; while in others, excavation is but slow to appear, in spite of the persistence of the disease, and if it does make itself felt, the process shows but little tendency to spread. Inquiry will probably always teach us that this difference in the liability of patients to lung cavities is owing to a difference in recuperative powers or in resistibility; that in the former instance, in all likelihood, the patient possessed a strong family history of the disease, together

with a poor appetite and a want of assimilation, while in the other, there was an absence of these conditions.

As a rule, it may be stated that a patient with a quiescent cavity is more desirable for treatment than one who has an infiltrated lung, and who is bound to pass into cavitation sooner or later. The existence of an inactive cavity, or one very nearly so, is a measure of the local resisting power of the surrounding lung tissue—it is evidence that the lung has the strength to limit the process of disintegration. There is precisely the same general condition here as is found in gangrene of an extremity. The formation of the demarcation-line shows that healthy action has successfully antagonized the march of the disease; but before this occurs there is as much uncertainty as to its point of location as there is concerning the probable size of a lung cavity after the process of destruction has once begun.

What now are the special indications which call for treatment in a patient who presents himself before you with a pulmonary cavity? They are (1) fever, (2) anorexia, (3) wasting, (4) harassing cough and expectoration, (5) loss of sleep, (6) diarrhœa, (7) hemoptysis. First in the order of importance comes fever. The degree of fever which is present in these cases depends on the activity of the process of excavation. If this has ceased and the cavity is what may be called an old one, there is very little or no fever; but it can be laid down as a rule that in all cases of phthisis pulmonalis, even in those which show an erratic, subnormal temperature, excavation is followed by a rise of temperature. With pyrexia are associated rigors, loss of weight, increased oxidation, etc. Fever in phthisis, as in fact in all other diseases, has for a long time been regarded as the result of an infective process. Without entering into an elaborate discussion of the causes and mechanism of fever, it may be stated that, according to the latest researches on this question, to which Dr. Isaac Ott, a member of this Association, has added some of the most vital contributions, the phenomenon of fever must be looked upon as one which is brought about by a disturbance of the heat-regulating centre of the nervous system; or, in other words, there is a nervous centre which presides over the evolution and dissipation of bodily heat, the same as there are nerve centres controlling motion and sensation. A disturbance of these latter centres is followed by either pain or muscular spasm, while a disturbance of the heat-centre causes a dissipation of heat. Fever is, therefore, a reflex disorder, and, according to this theory, the elevated temperature which accompanies pulmonary inflammation and excavation is due to irritation of the thermogenic nerve-centre and a consequent disturbance of the equilibrium between heat-production and heat-loss of the body.

There is little doubt, too, that the pyrexia of pulmonary phthisis is best controlled by agents which act solely through the nervous system, and this in itself is a strong confirmation of the neurotic theory of fever. Morphine, chloral, potassium bromide, chloroform and ether abolish pain and suppress muscular spasm by diminishing the impressibility of the centres of sensation and of motion. A number of our recently discovered antipyretics, such as antipyrin, antifebrin and phenacetin, bear an analogous relation to the process of fever. They reduce fever simply through their powerful influence on the nervous system.

Now all these antipyretics play an important *rôle* in the treatment of phthisical fever, yet, according to my own experience, which has been, however, rather limited so far as phenacetin is concerned, I think preference must, on the whole, be given to antipyrin. It is very soluble in water or in any aqueous vehicle, is very palatable and is therefore readily administered, which cannot be said of the other two agents. The objections to it are its expensiveness and its tendency to produce erythema of the skin in some cases if given for a protracted period. One thing must be borne in mind while giving these agents, and this is, that the ordinary small doses which are recommended, and which are usually large enough to affect the fever of acute diseases, are of very little use in the chronic fever of pulmonary phthisis. Ten or fifteen grains of antipyrin and eight or twelve grains of antifebrin or of phenacetin, every three or four hours, are small enough doses for a beginning, and must frequently be increased, probably doubled, before the fever is permanently subdued.

There can be no doubt that, aside from their antipyretic action, these agents, in virtue of their affinity for the nervous system, also exert a marked tonic influence on the whole body. In saying this I am not unmindful of the fact that when given for the purpose of lowering temperature in ordinary acute fever, they are liable to bring about sweating and depression, and at times produce a condition simulating collapse. It is needless to say, however, that such a state of affairs should never be provoked in phthisis, and furthermore that the reduction of fever can generally be secured without pushing the action of these agents to such an extreme point.

In consonance with the view that the fever of phthisis is, in some measure at least, due to the absorption of pus and other deleterious material from pulmonary cavities and bronchial tubes, the surfaces of which are in a state of catarrhal inflammation, various antiseptic agents and methods have been devised and proposed for the purpose of combating this infective fever. Medicines have been given by inhalation, by the mouth, by subcutaneous injection, as well as by enema, with this end in view; and while there can be no doubt that disinfectants applied in these ways exercise a beneficial influence on the fever, it is a question whether they do it by a process of antisepsis or by checking the local inflammation in the lungs. Among the agents which probably yield the best results when given by inhalation are ichthyol, carbolic acid and terebene. Personally I can recommend ichthyol, administered through a respirator, in the strength of a twenty-five per cent. aqueous solution. This agent is especially useful in bronchorrhœa and in actively secreting cavities, the profuse expectoration in such cases becoming remarkably diminished in a very short time.

Equal in importance to the reduction of fever is the problem of alimentation. Nothing gives rise to greater anxiety in the treatment of pulmonary phthisis than the persistent loss of appetite and wasting, nothing taxes the ingenuity of the practitioner more, and nothing demonstrates his ability better than his success in devising ways and means whereby his patient is led to partake of a sufficient amount of nourishment. This constant tendency to waste, without any effort at repair, is so great that one may be led to suspect that the real disease resides in the digestive and not in the respiratory organs. The stomach is, therefore, one of the principal battle-grounds on which the destiny of the patient has to be

fought out; and it may be laid down as a law that, if a patient improves in every respect save in eating, he must still be regarded as in a retrogressive state.

The task of making a patient eat, and frequently against his own will, is a very arduous and delicate one, but it can usually be carried out successfully, if sufficient tact is displayed by both practitioner and nurse. System, promptness and perseverance will accomplish much. A little food at regular intervals, and oft-repeated, will furnish a patient a large amount of nourishment in twenty-four hours, and will convince him that he has the power to ingest a great deal more than he thought he had. I have seen patients who, absolutely refusing all kinds of food, by persuasion, would take a glassful of milk, either cold or hot, every hour and a half or two hours, which gave them nearly two quarts of milk a day; and so soon as their confidence in their digestive capacity was restored in this way, they began to partake of other foods.

Another important feature in the dietary of a consumptive is variety. In this particular, more depends upon a good cook than on the physician or nurse. She must be dextrous and be able to render the bill of fare as tempting and as enticing as possible. The consumptive should not know in advance what the table has in store for him, so that he is not allowed sufficient time to manufacture excuses for not eating certain kinds of food. He always eats best when he is surprised by some new and inviting dish. He should also be permitted to eat anything for which he has a craving, unless it is known to be positively injurious.

In feeding these patients, it is frequently found that the first meal in the morning is vomited. This is generally due to the violent coughing efforts which are required to expel the cavity-accumulations of the previous night. This annoying factor can be overcome in most cases by asking the patient to eat nothing until the coughing paroxysm is over and the cavity cleaned out, or, if it is necessary to eat, to partake only of milk, soup, brandy or liquid food, in tablespoonful doses at intervals.

Now what kind of foods ought such patients to have? Clearly those which contain the greatest amount of food energy in the smallest bulk, and which at the same time confer the greatest amount of good on the body with the least expenditure of vital force in their digestion. Foremost among these are beef, broiled, roasted, rare or scraped; roasted lamb or mutton; eggs, raw or soft boiled; butter, cream, milk, oatmeal, beef-tea, soups, milk-punch, whiskey, brandy, wine, beef peptonoids, malted milk and other malt preparations. On the other hand, many other less nutritious foods and condiments, such as asparagus, lettuce, celery, green peas, tomatoes, potatoes, coffee, tea, chocolate, oils, spices, pepper, salt, vinegar, etc., should be admitted to the list. Meals should be served at regular intervals, five or six times a day, and the food should be slowly and thoroughly chewed before it is swallowed. Dinner taken in the middle part of the day should be the heaviest meal, and the last one at night should be the lightest one.

Feeding by the rectum is a method which deserves greater consideration in the treatment of pulmonary phthisis than it has so far received. In spite of theoretical objections, there is no question that, practically, the food which is placed in the lower bowel is digested and absorbed. This method not only economizes the strength of the stomach, but I have seen it counteract the tendency to diarrhœa which exists in many of these cases. For this purpose milk, eggs, beef essence, Valentine's meat juice, the pulp of raw fresh beef may be used. To the eggs and beef a small amount of pepsin may be added. The fluid foods are injected, while those of a semi-solid nature are best given in suppositories. One of the best ways to supply food by the rectum is to obtain hollow suppositories large enough to contain half or a whole teaspoonful of raw scraped beef-pulp, with a little pepsin, and administer them three or four times a day.

So far as medicinal treatment is concerned, much can be done to arouse and restore the digestive power of the patient. A pressure and fulness in the gastric region, associated with sour eructations after eating, is very often relieved by eight or ten drops of dilute phosphoric or of dilute nitro-muriatic acid in a glassful of hot water, after meals, or the same acids in combination with the compound tincture of cinchona, gentian and cardamom, or tincture of nux vomica, before meals.

In the next place, what can be done to quiet the distressing cough and expectoration which accompany the cavity-condition? It will, of course, be understood that the measures which have already been proposed for the reduction of fever and for the improvement of the appetite do indirectly alleviate the cough and expectoration. Cough itself is but a symptom which represents the degree of irritation wrought by the congestion, inflammation and the accumulation of catarrhal material on the terminals of the pneumogastric nerves, and anything which removes these offending causes or reduces their influence to a minimum will also ease the cough. In such a state of irritability, nothing is so soothing as the application of a large flaxseed-meal poultice to the chest. The patient soon experiences greater freedom in breathing, his cough becomes easier, the expectoration looser and a general improvement in the local condition follows. If the cough is troublesome at night, one grain of codeia can be given at bedtime, with $\frac{1}{300}$ of a grain of atropia if there is much sweating, and repeated in two or three hours if necessary. The morning cough, which persists until the cavity is cleared out, can be very much facilitated by teaching the patient to bend his head as low as possible, as if he were in the act of tying his shoes, or by asking him to go on his hands and knees, with the head lower than the buttocks. These positions, although not very æsthetic, give the law of gravity a chance to aid in the expulsion of the offensive cavity contents.

Hemoptysis is another and, sometimes, a very important and urgent symptom in the treatment of pulmonary phthisis. When I say it is important, I do not judge it so much from a material as I do from a moral standpoint. There is nothing which disturbs a patient's mental equanimity more than the spitting of blood. Its depressing effect is incalculable, yet really in ninety-five cases out of every hundred this symptom must be looked upon as a benefit rather than an injury—a relief to the congested part whence it comes, rather than a detriment to life. In the slow progress of cavity-formation, the larger bloodvessels become obliterated and disappear in the common ruin of the implicated part, and, as a rule, it is only those capillaries exposed on the surface of the excavation, similar to those often observed on the raw surface of chronic ulcers, which give rise to the bleeding. Occasionally, however, as in the rupture of an exposed aneurismal bloodvessel or in

what may be called a hemorrhagic diathesis, hemoptysis becomes, indeed, an alarming symptom; but these are the exceptions. In treating hemoptysis, give the patient as much encouragement as you possibly can. You can tell him, with perfect truthfulness, that bloodspitting is always to be expected in such a disease, that in the great majority of cases it must be regarded as a vent of nature to unload the overloaded and congested bloodvessels, and that under these conditions it is of no serious significance. Internally, give the fluid extracts of hamamelis and geranium—one part of the former to three of the latter—in teaspoonful doses every hour or two, or oftener if necessary. These agents seem to have a special control over venous hemorrhage, and they exert their styptic influence entirely independently of the tannic acid which they contain. They do not, as a rule, produce constipation, but, on the contrary, I have seen diarrhœa follow their use, which would hardly occur if their action were due to tannin; and I can further say that they succeeded in some cases in which tannic and gallic acids and ergot had failed. You will find this combination useful, too, in the hemoptysis which accompanies the early stage of the disease. Of course, if the bleeding proceeds from a large bloodvessel, absolute rest and the recumbent position must be enjoined, and ice be applied to the chest.

Last but not least in importance in treating this condition comes pulmonary gymnastics. Objections are frequently urged against this mode of expanding the lungs after cavities exist, for fear of exciting hemorrhage. While it must be admitted that this objection is not entirely without foundation, yet practically it is shown that the danger is exceedingly limited, and that the benefit which the method confers on the patient does more than compensate him for the risk which he at first incurs. It is certainly indicated. The secret why so many consumptives, even in the cavity-stage of the disease, experience such a great relief when they resort to high altitudes is that their lungs, which are habitually inactive, either from the want of exercise or from being impaired by deposits, are now immersed in a highly rarefied atmosphere which throws every available lung space into action, in order to supply the needed amount of oxygen to the body. The air cells become fully inflated, and if the products of inflammation are not dispersed, the surrounding lung tissue is kept permeable and the disease is at least kept in abeyance. Very few of these people suffer from hæmoptysis. This method of forcibly inflating the air passages of the lungs is precisely the same in principle as that which is so effectually employed by aurists in opening and in maintaining the patency of the Eustachian tube. This channel is not only made permeable by such a procedure, but its inflamed and swollen mucous membrane is restored to a more normal condition. Have we not, therefore, tangible ground for believing that that which does good in one case will also be of benefit in the other?

The breathing of compressed and of rarefied air must, therefore, be regarded as an important addition to the therapeutics of pulmonary consumption. A very simple apparatus by which air is prepared for this purpose is found in the machine with two double cylinders. With this, the patient can alternately inhale compressed and exhale into rarefied air at the same sitting. When air is breathed in this manner, there is felt during inspiration a gentle fulness and distention of the chest-cavity, while during expiration a feeling of emptiness is experienced. Waldenburg states that in this way from fifty to two hundred and fifty cubic inches more air can be inspired than during ordinary breathing. This should be done four or five times a day, or oftener if necessary, to produce the desired results.

In connection with the inhalation of compressed air, bodily exercise and forced voluntary breathing are to be highly recommended. The power of walking is common to most people, and this form of exercise is regarded of great service, even by those who exclusively advocate the high altitude treatment. Dr. Brehmer, of Görbersdorf, was, I believe, the first to prescribe for consumptives walking up a gradual ascent. A walk of half an hour or an hour, twice daily, either on the level or on a slight upward grade, is of great benefit. There are also many forms of exercise which may be carried on indoors, those performed by the arms being the most important. The arms, used as levers, are swung backward as far as possible, on a level with the shoulders, during each inspiration, and brought together, in front, during each expiration; or the hands are brought together above the head, during inspiration, and gradually brought down alongside the body, during expiration. When a deep breath is taken in accordance with either plan and held until the arms are gradually moved forward or downward, or even much longer, the process of chest expansion becomes materially enhanced. Another very effective chest exercise is to take a deep inspiration, and during expiration *only* to count in a loud voice as long as possible. A male person, with a good chest capacity, can count up to sixty or seventy, while in a female, even with good lungs, this power is somewhat reduced. Practice of this sort develops lung capacity, and the increased ability to count longer is a means whereby the improvement going on within the chest can be measured. The effects of many of these movements may be facilitated by the use of dumbbells and of chest weights.

The subject under review is a very large one, and I might and probably should have dwelt at greater length upon other methods and remedies, many of which are no doubt of much value; but my aim has been to lay only those points of treatment before you which I have tested, and which I can conscientiously recommend, and in doing this, I hope that I have been fortunate enough to impress upon you the conviction that the treatment of phthisis after it has passed into the stage of excavation is not such a formidable undertaking, is not beset by so many drawbacks as it is usually supposed to be; and I furthermore trust that I have succeeded in giving contagiousness to the feeling that no case of phthisis, unless actually moribund, should be treated with that masterly indifference which has hitherto been maintained by the profession toward this class of sufferers.

ORIGINAL ARTICLES.

A CASE OF ABSENCE OF THE VAGINA; OPERATION.

By ARCH. DIXON, M.D.,
of Henderson, Ky.

Early in April of the present year, Miss A. L., of Webster County, Ky., aged seventeen, applied to

Dr. P. H. Griffin for relief from difficult and painful micturition. The statement of the patient was that for a long time she had been troubled in this way, the urine being voided with the greatest difficulty, it requiring from half an hour to three-quarters of an hour to empty the bladder. She had never menstruated, but had suffered with headache, pain in the back and loins, at intervals, for two years, with an occasional discharge of a few drops of bloody fluid. Examination was made by Dr. Griffin, and the discovery made that there was entire absence of the vaginal outlet; nor could any meatus urinarius be found. The same day, I saw the patient, who was a well-formed girl, of medium height and weight. The mammary glands were well developed, the pubis was covered with a rather luxuriant growth of hair, the vulva had a normal appearance, at its upper extremity the labia majora becoming attenuated an inch and a half below the pubis into a flat, smooth surface, having a cicatricial appearance. There was a rudimentary clitoris, but close inspection revealed no outlet, either urethral or vaginal. Examination per rectum demonstrated the existence of ovaries and uterus, the latter being somewhat enlarged and globular in shape.

Operation was proposed and accepted. April 17th the patient was etherized and placed in the lithotomy position; a very careful examination failed to disclose the meatus urinarius. With manipulation above the pubis and through the rectum, the bladder was compressed by Dr. John Young Brown, who succeeded in forcing a drop or two of urine through an opening so small that it was with difficulty that a very small myrtle-leaf probe could be passed into it; this was, however, accomplished, and the meatus and urethra gradually dilated until a sound could be passed into the bladder. With the index finger of the left hand in the rectum, on approximation, the tissue between the sound in the bladder and the finger was apparently not thicker than the vesico-vaginal tissue is usually found; there was no trace of a fibrous cord nor of anything indicating that a vagina had ever existed; the uterus could be distinctly felt. With the knees flexed upon the abdomen, the skin was snipped between the meatus urinarius and the anus for about an inch and a half. With the index finger of the left hand in the rectum, and the sound in the bladder for a guide, with the index finger of the right hand I rapidly succeeded in making an opening between the bladder and rectum, to the depth of three inches, when the uterus was reached; this opening was then enlarged laterally and was lengthened perhaps an inch or more, but as there had been some indication of a menstrual flow in the bloody discharge from the meatus, it was deemed best not to proceed further with the operation at this time, but to wait for the appearance of the menses, and, should they appear at the now dilated urethra, to take further steps, as might be deemed necessary. A glass plug (Sims) was placed in the newly made vagina and confined there by a T-bandage. The dilator was removed and the opening subjected to daily irrigation with carbolized water; the bladder was emptied daily by catheter.

Very little, if any, disturbance followed the operation; there was slight rise of temperature (99°) during the first three or four days, and at the end of two weeks the patient was permitted to leave her bed, with instructions to remove the plug daily and continue the irrigation. Orders were left with the nurse to inform me at once should any bloody discharge take place. On May 17th there was epistaxis with slight hematemesis, the latter due, no doubt, to the patient having swallowed the blood as it passed into the pharynx through the posterior nares; pain in the back, loins and hypogastrium was complained of, which lasted till the 21st, when a drop or two of dark blood made its appearance at the meatus. Uterine contractions were severe. The right index finger was passed into the vaginal opening and supra-pubic pressure made with the left hand; the uterus could be felt to descend and a few drops of blood were forced out through the urethral opening. A catheter was passed into the bladder and a careful search around and in the meatus revealed a minute opening at its lower border; into this a filiform bougie was carefully passed until it reached the uterus; this was followed by a uterine sound and an attempt at dilatation made, but with pain so severe that it was decided to anæsthetize the patient and proceed to dilate the canal. The opening at the lower border of the meatus yielded badly, and its lower edge was clipped with scissors and torn down with the finger; the canal was then dilated with sounds until the index finger was admitted and the cervix uteri was reached. Further dilatation was made until a Sims glass dilator would pass, pressing down the posterior tissue of the canal until the opening previously made was almost entirely closed. The retained menstrual fluid was discharged gradually for several days, when, under rather severe uterine contractions, a large discharge of black, tarry-looking blood, filled with clots, took place, since which time there has been a general improvement in the condition of the patient and she expresses herself as delighted with the ease and comfort with which she empties her bladder, and, as she expressed it, "being now made like other women."

Remarks.—The foregoing case was certainly a remarkable one in many respects, and the error committed in the management of it seems to me to be a justifiable one. After the sound was introduced into the bladder, a presumably careful and sufficient examination was made, and the conclusion arrived at that the vagina was absent and that an operation should be made. This opinion was concurred in by three other physicians. The sound glided into the bladder, as did the catheter, giving no sign of an opening save that of the urethra, nor was any suspected by me, for I gave no credence to the escape of menstrual fluid through the meatus urinarius, and should have proceeded to empty the uterus at one operation had it not been deemed best, under all the circumstances, to wait. Emmet, in speaking of such cases, says:

"The external portions of the organs of generation are generally well formed, but on exposing the vulva, the

orifice of the urethra will be found rather lower than natural, and at the bottom of a shallow sulcus, and there will be no appearance of a vaginal outlet. In absence of the vagina, the urethra is always unnaturally relaxed, but the power of retention of urine remains unimpaired."

In this case the external parts were not well formed, there was no perceptible urethral orifice, and it was only after the closest search that it could be found at all. The tissue, from the meatus to the anal orifice, was firm and smooth, with no suspicion of a vaginal outlet.

The same author further says, in regard to diagnosis:

"In congenital absence of the vagina, only a shallow sulcus is present between the labia. Some aid may be gained for forming a diagnosis from the thickness of the septum between the bladder and the rectum, and this is to be ascertained by means of a finger in the rectum and a sound in the bladder. In the congenital form, the septum will be found as thin as the recto-vesical one in the male, since there has been no development of the muscular and other tissues forming the vaginal wall. But after the vagina has been once formed and the uterus has for a while performed its functions, the vaginal wall will remain, after accidental occlusion, even thicker than before, so that there will be little difficulty in forming an opinion, even if the presence of the urethra could not be detected. Under ordinary circumstances, there can be but little difficulty in forming an accurate idea of the true condition. In the absence of a vagina, with accumulation, the condition might be complicated by the occurrence of a hematocele, or a collection of pus in the pelvis, but a careful investigation of the case will remove all such difficulties of diagnosis."

In the case under consideration there was only a shallow sulcus between the labia. With a sound in the bladder and a finger in the rectum, the septum between the bladder and rectum did not seem to be thicker than the recto-vesical septum in the male; there appeared to be an entire absence of the muscular and other tissues forming the vaginal wall; the uterus was present and enlarged, evidently from accumulation, as there was no complication in the case. Under all the circumstances, I repeat that the error committed in the management of the case seems to me to have been justified. The girl is now well and her last menstruation was normal.

Henderson, Ky., July 9, 1888.

INFLATION OF THE STOMACH WITH HYDROGEN GAS IN THE DIAGNOSIS OF WOUNDS AND PERFORATIONS OF THIS ORGAN, WITH THE REPORT OF A CASE.

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In my paper on "Rectal Insufflation of Hydrogen Gas as an Infallible Test in the Diagnosis of Visceral Injury of the Gastro-intestinal Canal in Penetrating Wounds of the Abdomen," read in the Surgical Section of the American Medical Association, I incidentally called the attention of the medical profession to the value of inflation of the stomach as a diagnostic measure in cases of injury or perforation of this organ, in that part of the paper which referred to inflammation of the alimentary canal through the stomach tube. We should naturally expect that the alimentary canal could be inflated with more ease and with a less degree of force by following the normal peristaltic wave. That this is not the case will be seen from the following experiments:

Experiment VII.—Dog, weight 40 pounds (18 kilograms). After complete anæsthesia was effected, a flexible rubber tube was introduced into the stomach and the free end connected by means of a rubber tube with a four-gallon rubber balloon, containing hydrogen gas. Between the gas reservoir and the stomach-tube a manometer was interposed, registering accurately the force used in making the inflation. The inflation was made by compressing the rubber bag. A tube was introduced into the rectum to facilitate the escape of gas that might reach this portion of the intestinal tract. Under a pressure of one pound and a half the stomach dilated rapidly, and later the entire abdomen became distended and resonant on percussion, but no gas escaped per rectum. When the pressure was increased to two pounds (one kilogram) no further distention of the abdomen took place, as the gas escaped along the sides of the stomach tube. At this time respiration became greatly embarrassed, but was relieved on allowing gas to escape through the stomach tube. On compressing the abdomen firmly the distention disappeared almost completely; at the same time a large quantity of gas continued to escape through the stomach tube. Inflation was renewed, and under a pressure of one pound and a half the abdomen again became uniformly distended. When the pressure was increased to two pounds (one kilogram), the dog suddenly died and all efforts at resuscitation failed. On opening the abdomen the stomach was found enormously distended, reaching three inches below the umbilicus, and occupying almost the entire abdominal cavity. The upper half of the small intestine was distended; numerous points of sharp flexions were found among the different distended coils. The distended stomach had evidently encroached so much upon the abdominal space as to render the greater part of the intestinal canal impermeable by pressure.

Experiment VIII.—Dog, weight 15 pounds. After the animal was placed fully under the influence of ether, the abdomen was opened and the cæcum and lower portion of the ileum drawn forward into the wound, and a large needle of an aspirator inserted into the ileum just above the ileo-cæcal valve. Through a rubber tube hydrogen gas was forced into the stomach. Under one pound (five hectograms) of pressure the stomach and upper portion of the intestines dilated readily. When the force was increased, the gas returned through the œsophagus along the sides of the stomach tube.

Experiment IX.—Dog, medium size. This animal was killed to ascertain the results of an experiment

made for another purpose. Rubber balloon, containing hydrogen gas, and manometer were used for making the inflation. The tube through which the inflation was made was tied in the œsophagus. The abdomen was distended enormously, and on increasing the pressure to 3¾ pounds (1½ kilograms) still no gas escaped through the rectal tube. The abdomen was then opened, when the stomach was found so enormously distended that it filled almost the entire abdominal cavity. About one-fourth of the length of the small intestine was found distended, and among the distended loops numerous acute flexions could be seen. After the abdomen was opened, under long and continuous distention, the peritoneal covering of the stomach gave way, when the manometer registered only one pound and a half of pressure.

EXPERIMENT X.—Dog, weight 18 pounds (8 kilograms). Immediately after death the œsophagus was isolated and the tube of the hydrogen gas inflator securely tied in, and a glass tube was inserted into the rectum. Under a pressure of 2¾ pounds (1.2 kilograms), registered by the manometer, the gas first dilated the stomach and then passed along the intestine until it escaped in a steady stream through the rectal tube, when it was ignited. On opening the abdomen the stomach was found greatly distended, while the distention of the intestines was a great deal less marked. None of the tunics of the stomach or intestines was injured.

EXPERIMENT XI.—Dog, weight 20 pounds (9 kilograms). Animal etherized and a flexible tube connected with the gas inflator introduced into the stomach and a glass tube into the rectum. On inflation the stomach became gradually distended, and when the pressure had reached 1½ pounds (0.6 kilogram) the dog vomited and a good deal of gas escaped at the same time. Inflation was again commenced and was followed by uniform distention and tympanites over the entire abdomen; when the pressure reached 2½ pounds (1 kilogram) the gas escaped from the rectum, and when ignited burned with a steady, blue flame. The experiment was followed by no unfavorable symptoms.

EXPERIMENT XII.—Dog, weight 12 pounds (5½ kilograms). Under the influence of ether, inflation with hydrogen gas, in the same manner as in the last experiment. As soon as the stomach became well distended and the manometer registered 1½ pounds of pressure, vomiting occurred, attended by a free escape of gas, which was followed by collapse of the distended epigastric region. When inflation was again resumed, it was noted that any increase of pressure over 1 pound (0.45 kilogram) was followed by regurgitation of gas, and, on this account, it was found impossible to inflate the lower portion of the intestinal tract. No unfavorable symptoms followed the experiment.

EXPERIMENT XIII.—Dog, weight 28 pounds (12½ kilograms). Under the influence of ether, inflation with hydrogen gas through a stomach tube. As soon as the pressure was increased to more than 1 pound (0.45 kilogram), the gas escaped along the sides of the tube through the œsophagus; consequently only the upper portion of the abdomen could be distended, and the inflation evidently did not extend much beyond the stomach. The experiment was repeated several times, with the same result. The animal remained perfectly well after the experiment.

EXPERIMENT XIV.—Dog, weight 12 pounds (5 kilograms). Inflation of stomach with hydrogen gas under full anæsthesia. The effect of the inflation was the same as in the last experiment, only the stomach and upper portion of the small intestine could be distended, and further inflation was impossible, as the gas escaped from the stomach as soon as the pressure exceeded 1 pound (0.45 kilogram). A large needle of an aspirator was passed through the linea alba into the stomach, and the gas which escaped through it, on being lighted, burned with the characteristic blue flame. After the needle was withdrawn, the inflation was continued, to ascertain if the puncture in the stomach would allow the escape of gas into the peritoneal cavity. The inflation was continued until the entire abdomen was distended by the gas. That the distention and tympanites were due to the presence of gas in the peritoneal cavity became evident, as they remained after the stomach had been emptied of its gas, and, on percussion, it was ascertained that the entire liver dulness had disappeared. The dog recovered without symptoms of peritonitis or any other ill effects from the experiment.

These experiments demonstrate conclusively that it is more difficult to inflate the alimentary canal from above downward than from below upward, as in the living animal I succeeded in only one instance in forcing hydrogen gas from the mouth to the anus, while in others a degree of force sufficient to rupture the peritoneal coat of the stomach only effected distention of the stomach and upper portion of the intestinal canal. It is evident that great distention of the stomach constitutes an important factor in causing or aggravating intestinal obstruction, as it effects compression, which again causes impermeability of the intestines, or aggravates conditions arising from an antecedent partial permeability, by producing sharp flexions among the distended coils of the intestines.

For diagnostic and surgical purposes, the stomach can be readily inflated almost to any extent through a stomach tube, and when it becomes necessary to ascertain the presence of a visceral wound or perforation of this organ, this method of inflation may be resorted to with advantage.

I have recently had an excellent opportunity to apply this test in a case of gunshot wound, of the chest and abdomen, in which, without it, it would have been impossible to make a correct diagnosis. The insufflation made the diagnosis positive, and the information obtained from it justified the treatment by laparotomy, although the general symptoms were so grave that it appeared doubtful if the patient would live long enough to complete the operation.

C. H., a man, seventy-two years of age, brought to the Milwaukee Hospital by the police patrol, at

7 A.M., July 9, 1888, for a suicidal, bulldog pistol (44-calibre) wound of the chest, inflicted about two hours previously. Pistol held in the left hand, as ascertained from the patient and confirmed subsequently by examination of the direction of the bullet. The patient stated that he had pointed the pistol toward the heart.

Examination, 7 A. M. Wound of entrance situated in the left sixth intercostal space, surrounded by emphysema. Seventh rib fractured at junction of cartilage and bone. No wound of exit. Patient conscious; complains of severe pain in the epigastric region, increased by pressure. Pulse rapid and weak. Vomits and expectorates blood. Area of liver dulness diminished. Percussion and respiratory sounds normal. No evidence of hemo- or pneumothorax.

9 A. M. Flexible tube introduced and stomach inflated with hydrogen gas from a four-gallon rubber balloon. Inflation effected by continuous pressure on the balloon. Gas escaped and ignited at the wound of entrance with an audible sound. Field of operation thoroughly disinfected. Patient etherized and laparotomy made by incision from the ensiform cartilage to the umbilicus. The omentum and stomach were drawn forward into the wound. A large perforation, about one and a half inches in length (due to the oblique direction of the bullet), was found in the stomach, midway between the pylorus and the cardiac end on the greater curvature. Stomach partially filled with coagulated blood. With the index finger introduced through this perforation, another was detected on the lesser curvature and near the cardiac end. The omentum, which was adherent to the colon, was torn through and exploration of the posterior surface of the stomach failed to reveal the old site of the second wound which was felt by the digital exploration of the interior of the organ. The blood-clots were removed from the stomach by irrigation through the lower wound.

For the purpose of locating with accuracy the second wound, the stomach was inflated through the bullet wound on the anterior surface with hydrogen gas, the escape of which made it easy to locate the second wound. The omental opening was enlarged by tearing and the perforation was discovered on the posterior surface at the lesser curvature and close to the cardiac orifice. Great difficulty was experienced in dragging the stomach sufficiently forward and downward into the abdominal incision to enable me to suture the perforation, which was two inches in length. It was closed by a continuous Lembert suture of silk, the anterior wound by a Czerny-Lembert suture.

Considerable blood was found behind the stomach, in the region of the pancreas. The hemorrhage had evidently taken place from lacerated vessels of considerable size at both perforations as well as from vessels in the pro-peritoneal space. Probable direction of the bullet from above downward, backward and to the right. At this stage collapse from shock and hemorrhage supervened. The body was partially inverted and a saline infundation of fifteen ounces of a six-tenths per cent. salt solution performed. Brandy was injected subcutaneously and faradic current applied to phrenic and pneumogastric nerves without any apparent effect. Death occurred before the abdominal wound could be closed.

The abdominal incision was sutured and inflation of hydrogen gas, per rectum, made to test the condition of the sutured stomach. A stomach tube was introduced and the gas, under a pressure of not more than a pound, forced through the entire gastro-intestinal canal, igniting and burning with a continuous flame as it escaped from the end of the stomach-tube, which showed that no gas escaped through the sutured wounds. Post-mortem was made immediately. Wound of entrance in the sixth intercostal space, seventh rib fractured at junction of cartilage and bone, both pleural cavities obliterated by adhesions, margin of lower lobe of left lung perforated, pericardium intact, lacerated opening in diaphragm admitting two fingers. Perforations in stomach as described. Liver and spleen not injured, upper margin of tail of pancreas lacerated. Bullet passed to left of the aorta, entered the left crus of the diaphragm, fractured the last rib at the neck and perforated the spinal column, entering between the last dorsal and first lumbar vertebra, escaping through the body of the latter and fracturing its right transverse process. Bullet found in the subcutaneous connective tissue of right lumbar region. The spinal canal was opened by the bullet in its passage through the vertebra, and loose fragments of bone lay in the canal. The membranes of the cord were intact and the cord itself uninjured.

The location of the wound of entrance in this case did not indicate that the bullet had entered the abdominal cavity unless the revolver was held in the left hand; in that case, as it was directed toward the heart, the track of the bullet would be necessarily downward, backward and from left to right. Taking it for granted that the bullet took this direction it would still have been possible for the stomach to escape injury. The circumscribed emphysema around the external wound and the hemoptysis, as well as the location of the wound, left no doubt that the lower lobe of the lung was injured. The absence of hemothorax and pneumothorax was explained by the post-mortem, as the left pleural cavity was found completely obliterated by adhesions. Under a pressure of not more than half a pound to the square inch, the hydrogen gas was forced through the external wound where it was lighted and burned in a large continuous flame until it was extinguished by compression with a large moist sponge. Very little gas was found in the peritoneal cavity.

In perforation of the stomach without an external wound, inflation of the organ with hydrogen gas will render the abdomen universally tympanitic, as the gas will escape into the peritoneal cavity and, as it always occupies the highest plane, on account of its low specific gravity, it will push the abdominal organs backward, and thus it happens that the liver dulness disappears completely, which fact alone, if established, makes the diagnosis of perforation posi-

tive, unless the organ is fixed in its place by peritoneal adhesions, the result of a previous peri-hepatitis.

In cases of perforating ulcer of the stomach or duodenum, if this simple diagnostic measure is resorted to in time, it will prove the means, by prompt surgical treatment, of saving many a life that has hitherto been sacrificed under the expectant plan of treatment.

It has been claimed that hydrogen gas is objectionable for purposes of inflation, as when it is mixed with a certain proportion of oxygen or atmospheric air it forms an explosive compound. Against this argument I can say that no accidents of any kind have occurred during any of my numerous experiments on animals, nor in the few cases in which it has been applied in practice. Hydrogen gas has the lowest specific gravity of all the gases known, and on this account, as well as from its non-toxic qualities, it should always be preferred to other gases and atmospheric air, simple or medicated. The hydrogen gas test appeals both to the sense of sight and hearing, if successful in cases of perforating wounds. The preparation of the gas is so simple and rapid that its use is applicable not only in hospital and city but also in country practice.

I have recently been able to make a correct diagnosis in several cases of obscure abdominal tumors, by resorting to stomach and rectal inflation of hydrogen gas, which, without these diagnostic measures, would have been impossible, short of an exploratory laparotomy. The relation of tumors of the abdominal cavity to the different organs and the peritoneal cavity can be mapped out and studied with great accuracy by dilating the stomach and different portions of the intestinal canal, at intervals, by inflation with this harmless and readily procurable gas.

SURGICAL DRAINAGE.[1]

By W. R. WHITEHEAD, M.D. (Paris),
OF DENVER, COLORADO;
EX-PRESIDENT OF THE COLORADO STATE MEDICAL SOCIETY, LATE PROFESSOR OF ANATOMY IN THE MEDICAL DEPARTMENTS OF THE STATE UNIVERSITY OF COLORADO AND OF THE UNIVERSITY OF DENVER, ETC.

More than a decade after Chassaignac had established the value of drain-tubes in the drainage of suppurating wounds, one of America's greatest surgeons[2] wrote in 1872, in his classical work on surgery, "that the great objection to drain-tubes was their liability to become clogged, and their tendency to cause irritation in the parts into which they are introduced." "For these reasons," said this eminent surgeon, "it is not likely they will ever come into general use."

Influenced by the teachings of Chassaignac, and also by the excellent results of my personal experience of the draining of suppurating wounds, I became an advocate of surgical drainage. Now that the principles of aseptic and antiseptic surgery are so well known, and are so thoroughly appreciated, I am more impressed than ever with the value of surgical drainage; and propose, in a brief communication on this important subject, to endeavor to claim for it the attention it deserves.

My first personal trial of drain-tubes was in 1860, when I used them, conjointly with tonics and cod-liver oil, in a case of scrofulous osteitis of the scapula: A counter-opening was made so as to pass in a perforated rubber tube, and permit the two ends of this tube to be tied together on the outside, after Chassaignac's method. The tube was syringed out daily, so as to keep it clear, and the wound thus cleansed with a solution of chlorinated soda, or Labarraque's disinfecting liquid. Occasionally, the tube was removed, cleaned and reinserted. The improvement in the local condition was marvellous. Subsequently, and during the early part of our civil war, as a surgeon in the Confederate army, I used surgical drainage in a number of suppurating wounds; and, notably, in one case of phlegmon of the neck, which succeeded to a gunshot wound that cut the cervical plexus: I incised the deep cervical fascia and, having made suitable counter-openings, inserted two rubber drain tubes, and tied their ends together as just described; and, as well as I can now remember, I treated the case in much the same way as the case first mentioned. After some weeks the wound entirely healed, the general health improved and there remained only the paralysis of the upper limb.

It is, however, of drainage as practised at the present time that I wish to speak; and as nothing so vividly and forcibly impresses my own mind as the practical application of a method, I shall, therefore, beg to call attention to the following recent case of fracture of the skull in which, I believe, the drainage, under an aseptic management of the wound, was the most interesting and important feature of the treatment.

Case.—Horace C., aged five and a half years, on the evening of April 22, 1888, while crawling near a horse, received a kick, which fractured the frontal bone on the left side, the fracture extending to the coronal suture. The depressed piece of bone was nearest to this suture, and the depression corresponded to a line extending obliquely downward, forward and outward from the coronal suture to the temporal ridge and slightly posterior to the external angular process of the frontal bone. The depressed edge of the fractured bone was to the outer side of the line of fracture. The depression did not give rise to any cerebral disturbances affecting consciousness, or causing motor paralysis.[1]

[1] Read before the Colorado State Medical Society, June, 1888.

[2] Gross: System of Surgery, vol. i. p. 487.

[1] The line of fracture crossed the horizontal convolutions of the frontal lobe anterior to the ascending frontal and parietal convolutions or motor areas of the cortex. I thought best to trephine,

His head having been shaved he was chloroformed by Dr. J. E. Lowery, of Denver. An incision was made at right angles to the lacerated cut, and under thorough aseptic precautions the head was trephined, and the depressed piece of bone elevated with the point of a Sayre's periosteotome; the depressed piece of bone returning to its place with a sudden and quite audible snap. The wound was sutured with catgut, and a small rubber drain-tube placed in the centre of the wound, opposite the button of bone removed (see A in the wood-cut), and a still smaller tube was placed in the posterior angle of the wound. Both

Fig. 1.

Case of trephining for fracture of the skull; illustrating the value of drainage.

drain-tubes were secured in place, each with a stitch of catgut; a slightly moist iodoform gauze dressing was applied immediately over the wound; over this dressing was placed a small piece of folded sublimate gauze, and over this a circular piece of very thin rubber tissue cloth, and overlapping the rubber on all sides for several inches I placed a dressing of borated cotton, and applied a double-headed bandage, securing it under the chin, not having with me any elastic bands.

I think the drain-tubes were of major importance, as the dressing when removed plainly showed. If pus forms and burrows beneath the skull, a case like this becomes very serious, and the most rigorous antisepticism will be attended with doubtful results. The temperature averaged 99° to 101° F.

April 30, I removed the dressings, they having become loose, the fault of not having elastic bands with me when they were applied. Wound healed, except at drain holes; removing the tubes, there was a drop or two of pus. The wound had evidently remained aseptic until the fifth or sixth day, when the dressing became loose during the night; hence the pus. After syringing the drain holes with a mercuric bichloride solution, they were stuffed with iodoform gauze and dressed. This was repeated once or twice only, when the wound healed.

On removing the first dressing, the borated cotton, all around the outside of the rubber tissue cloth, was thickly saturated with dry blood. Thus it is seen how effectively the little drain-tubes performed their first office of draining off the blood and serum within the first few hours. No blood clot was left within the wound to become disorganized, should its aseptic condition fail to be maintained a sufficient length of time; but the drain-tubes were in place and ready, if needed, to perform their second office of draining off pus.

Healing, with a view to an organization of the moist blood clot, or after Schede's method, would have required the most scrupulous care in the adjustment of bandages about the head to keep them from becoming loose. This could have been accomplished by the use of elastic bands, in addition to the double-headed bandage, or by a suitably fitting cap.

The accompanying picture of the boy shows the scars, indicating the location of the injury; and shows, in part only, the extent of the fracture downward and outward. The dark spot in the line of the scar corresponds to the site of the trephining; and the scar to the right of this spot to the cut I made for room to apply the trephine.

There are two distinct indications which call for the use of drainage: One is to rid a fresh wound of discharges of serum and of blood within the first few hours; and the other is to prevent, subsequently, the occurrence and spread of suppuration, should it take place, or to drain a part of pus when it has already formed, just as the drain hole in the bottom of a flower-pot prevents a saturated condition of the soil about the roots of a plant.

It was for the purpose of draining pus, and for it alone, that drainage was originally employed in the days of preaseptic surgery.

I formerly used a well-known antiseptic wash, Labarraque's solution, already mentioned, for wash-

because under careful asepsis and skilful management of the case, the dangers of trephining are greatly less than the subsequent dangers of cerebral disturbance from a neglect to elevate the depressed bone. The button of bone was not returned, because it was small, and the small opening permitted the use of a drain-tube, a consideration infinitely more important than the complete occlusion of the line of fracture, because the blood which escaped in the dressing through the drain-tube would otherwise have given rise to compression. When the quantity of bone removed by the trephine is considerable, it is best, under aseptic precautions, to return most of it, as there will be, probably, openings enough for drain-tubes.

ing out wounds through drain-tubes. It seems so rational to do so that I have no doubt that centuries ago the thought must have occurred to surgeons to drain and wash out suppurating wounds; only the example was wanting, and the present kinds of cheap drains were not to be had.

The progress of surgery has heretofore been slow, like that of other arts which depend upon the gradual adoption and use of the numerous conveniences of life, which suggest the use of other conveniences.

The spirit of conservatism often retards the adoption of a really good thing, and will not permit us to live ahead of our time. Conservatism holds the world in check, until the world, generally, is ready to approve and accept of a new thing. Drainage had been waiting for the surgical era of Listerism, when it could accomplish its grandest triumphs.

The distinguished preaseptic surgeon, already mentioned, the pride of the surgical profession of America, wrote his disapproval of drainage; and at once the spirit of conservatism, so eminently respectable and so conspicuously shown, discarded the new method of Chassaignac; but it has reappeared at the front, reinforced by aseptic and antiseptic methods, and, I believe, to stay for a while until something better supersedes it.

Drain-tubes made of aluminium and of glass are used to meet special indications. Silver, especially, has been used, and, probably, was the first substance employed for this purpose. Thin sheet lead, made into tubes, is an available material, out of which drain-tubes have been made.[1] Catgut, or rather sheepgut, bunched in numerous strands, as also horse-hairs arranged in a similar manner, are much praised by some surgeons. John Chiene, of Edinburg, was the first to propose catgut as a drain. The well-known objection to this material is its property to absorb moisture and swell rapidly if previously put in an aqueous solution, making it difficult to thread a needle with it; and when used for drainage, catgut softens, swells and obstructs the flow of blood and serum, unless hardened beforehand in a chromic acid solution, so that filtration by capillarity along the threads is prevented. It is only during the first few hours that this kind of drain is available. It will not drain pus at all. If employed, it should be collected into a bundle of threads, of from five to twenty pieces, tied in the middle with a single catgut thread, and this should be threaded to a needle, and the drain stitched to the bottom of the wound, to keep it in place; besides, the catgut should be chromicised. The catgut drain is an absorbable drain, and, after a variable period, disappears. Those hardened in chromic acid take a great while to be absorbed. Horse-hair is an available substance for draining wounds; a bundle of horse-hairs is previously made aseptic, and tied in the middle with a carbolized silk thread; the knotted central part is placed in the wound by means of a fistula forceps. Horse-hair is not absorbable.

Neuber, of Kiel, was the first to use absorbable drain tubes, made from the tibiæ of oxen and decalcified. Macewen first used the long bones of chickens for the same purpose. Those which I use are prepared by myself, after Kocher's method; they are the long bones of chickens, decalcified, scraped and cleaned, and after remaining in the oil of juniper berries forty-eight hours, are then placed in strong alcohol, in which they are preserved ready for use. Red rubber drain-tubes, of different sizes, are also sometimes used. It is desirable to employ rubber tubes free from sulphur, when these are used. The red rubber is said not to contain any sulphur.

When a fresh wound is made thoroughly aseptic, and it can be confidently assumed that suppuration will be prevented, then I know of no better drain than a non-chromicised and properly prepared bone drain-tube, which will, probably, be absorbed within eight to ten days. After some recent joint resections, I have found bone drain-tubes, of my own preparation, to disappear within that period; these were cases in which I also used, at least, one rubber tube, at the most dependent part of the wounds; and these cases, with others, will form the subject of a future paper, but not, however, with any especial reference to drainage. In one of two cases of partial resection of the knee-joint, the joint resection was perfectly healed within a month; but two of the drainage tube holes continued to discharge pus, and required free incision and scraping, which was done under chloroform given by Dr. Lowery, when, after a few weeks, the wounds were entirely healed. The peculiar feature of this case with reference to the drainage, and which is appositely cited here, was that some weeks before, I curetted the suppurating drain holes, one of which I laid bare by incision. Around the orifices of the drain holes, there were granulating ulcerations, which, as Gerster observes, are an unmistakable indication for the use of the curette or sharp spoon.

In my opinion, the best drain-tube for general use is the perforated rubber tube of medium size. I believe it is better to insert one or more small tubes, side by side, than to use a very large tube, especially in the aseptic treatment of wounds; because one tube can be removed on the third or fourth day, if required; and if they should all remain for ten days or longer before removal, and the wound remains aseptic during this time, they can then be taken out, and there will not be found a drop of pus. Afterward, under proper care, the drain holes close with-

[1] Dr. Buckingham, of our Society, saw such used forty years ago.

out suppuration, unless there remains a focus of cheesy-like degeneration, which was the cause of the persistent suppuration from the drain holes in the case just mentioned, and which was, finally, completely cured by scraping and subsequent dressing with iodoform gauze.

A good way to treat a suppurating sinus after the drain-tube is removed and the sinus shows no tendency to heal completely is to benumb the parts around the orifice of the sinus with a ten per cent. solution of muriate of cocaine, then to make a slight incision over the sinus, curette it and dress it with iodoform gauze in the following manner: Take a small strip of bichloride gauze, or simply iodoform gauze, dust it thickly with iodoform, roll and twist it into a cord: seize the cord near its middle with a fistula forceps and carry it to the bottom of the wound or sinus, letting the ends of the cord project from the cut; dust thickly with iodoform and complete the dressing. This cord thickly impregnated with iodoform checks suppuration, and also acts, to some extent, like a drain; only infrequent dressings are needed, and the sinus heals rapidly, especially if it has been curetted. Small safety pins are used to prevent drain-tubes from slipping into the wound; but I have found it more convenient to stitch each one of them to the skin with a single loop of fine catgut: this prevents them from slipping in or out: and if there is no occasion to remove the drain-tubes before the eighth or tenth day, the catgut is absorbed, as is also the drain-tube, if it be a bone drain-tube, well prepared and not chromicised. If the tube be a rubber one, it is readily removed, and if found aseptic, or without pus following it, the hole should be dressed with iodoform, without syringing it out, as the syringing is apt to break up the newly formed adhesions.

In making a counter-opening for a drain-tube, there are two ways to do this. If it is a phlegmon to be drained, incise it, introduce the index finger of the left hand and seek for the most dependent part of the abscess cavity, push firmly with this finger and cut the skin over it; then push through this cut with the closed blunt points of the fistula forceps, seize the tube with the forceps and pull it into the cavity. If, instead of a phlegmon to be opened and then drained, there is pus escaping from a sinus, badly situated for drainage, it is, of course, necessary to make a counter-opening. In this case, probe the sinus with the closed fistula forceps, seek the place where the counter-opening is to be made, push with a drilling motion the points of the closed forceps toward the skin, and when the skin is reached incise and draw the drain-tube through. This, I believe, is Lister's plan, and avoids a large cut.

OPERATION FOR INGROWING TOE-NAIL, WITH HYPODERMATIC INJECTION OF COCAINE, FOLLOWED BY COLLAPSE AND GANGRENE.

By F. JOHNSTON, M.D.,
of Cairo, Georgia.

Miss S., æt. twenty, single, in good health, consulted me, June 25th, complaining of pain in the great toe of her left foot. On examination, I discovered that the nail had grown to a depth of an eighth of an inch in the soft parts on the inner side; otherwise, the toe appeared normal. I advised a V-shaped operation, which I performed the next day as follows:

After thoroughly washing the left foot with warm water and soap, and disinfecting all instruments that were to be used, I inserted one-half grain of muriate of cocaine, with an ordinary hypodermatic syringe, in the soft parts on the inner side of the great toe. After waiting two minutes, I ascertained that feeling in the parts was completely absent. I made a V-shaped incision, nearly to the bone, and took out the plug. As soon as hemorrhage was arrested, which was very slight, the two raw surfaces were brought together and five silk sutures, previously soaked in a twenty per cent. solution of carbolic acid, were used. The wound was then dressed by sprinkling iodoform on it, and soft linen used as a bandage, the foot being kept in an elevated position.

From the time of the injection of cocaine till the completion of the operation was thirty-five minutes, and during that time she complained of no pain at all. Just as I was preparing to leave, I saw she was in a state of collapse, pulseless, lips cyanosed and heart beating feebly and irregularly. I administered nearly a drachm of sulphuric ether hypodermatically, and two drops of nitrite of amyl internally, which gave immediate relief.

I visited my patient on the following morning and found her resting well, complaining but little. I then took off the dressing to put on a new one, and to my complete astonishment the entire flesh on the inner side of the toe was black, cold and bloodless, and had a mummified look. The stitches were all taken out, and the wound treated as gangrenous, and in two weeks' time her toe was well and she was able to walk without further pain.

MEDICAL PROGRESS.

Treatment of Yellow Fever.—Regarding the treatment of this disease, Dr. George M. Sternberg, U. S. A., in the *Therapeutic Gazette*, August 15, 1888, reports the favorable results obtained in a series of twelve cases treated on the alkaline plan.

His recent researches in Havana have led him to think it very probable that in yellow fever, as in cholera, the specific microörganism causing the disease is located in the alimentary canal. While this is not proved, it is demonstrated that, as a rule, no microörganism capable of development in the culture-media usually employed by bacteriologists, is present in the blood or tissues of those recently dead from yellow fever. This view naturally suggests intestinal antisepsis as a mode of treatment.

It is well known that in yellow fever the urine and the vomited matters are highly acid. He has also found the intestinal contents to have usually a more or less decided acid reaction. A microbe, therefore, capable of multiplying in the stomach and intestine in this disease must be able to grow in an acid medium. But aside from this theoretical reason for prescribing alkalies, the highly acid condition of the secretions furnishes an indication for such a treatment, and the writer has long desired an opportunity to see a thorough trial of a decidedly alkaline treatment.

These considerations induced him during his recent visit to Havana to propose the following formula:

℞.—Sodii bicarb., grammes x (gr. 150);
Hydrarg. chlorid. corrosiv., centigrammes ij (gr. ⅓);
Aquæ puræ, litre j (1 quart).—M.

Sig.—50 grammes (about 1¾ oz.) every hour; to be given *ice cold*.

This treatment was adopted by Dr. Raphael Weiss, house physician at the Garcini Hospital, and he has just received from him a record of twelve cases treated by the director of the hospital, Dr. Francis Cabera, and himself.

It will be seen that they all recovered, and he adds that every case so far treated at the Garcini by that method has recovered. While these twelve cases were being treated, and a little before, eight cases were treated in the same institution by other methods, and five of the eight died.

Dr. Weiss writes him that in some of the more severe cases he increased the amount of bichloride to five centigrammes (¾ gr.) per litre. He says:

"Administering to the sick the bichloride of mercury, according to your directions, the gastric phenomena are very much modified; the gastric sediments appear later, and in no case have they been entirely dark. In some cases, truly dangerous on account of the state of the patient, in a general sense, gastric sediments (black vomit) did not appear, nor even nausea. The pains in the stomach were not so severe."

In some of the cases Dr. Weiss added benzoate of sodium to the formula for its laxative effect, and administered daily two enemas containing each a gramme (15 grs.) of the phenate of sodium.

Sherry wine and hypodermatic injections of ether were given during the second stage, when the pulse was feeble and the condition of the patient seemed to call for a stimulant.

With reference to the urinary secretion, Dr. Weiss writes:

"The urine has always been abundant. In some cases the density lowered, but was compensated by a large quantity of urine. Albumin did not appear in some of the cases, in others the amount was small, and in others it reached two grammes to the litre. The albumin has always disappeared on the second or third day, and then the fever ceased."

Whether the favorable results are to be ascribed to the alkali, or to the antiseptic action of the bichloride, can only be determined by testing the two remedies separately; but he is very much disposed to ascribe the unusual absence of gastric disturbance, and the abundant secretion of urine noted, to the alkaline element of the treatment, and it is extremely doubtful whether the bichloride reaches the intestine in sufficient quantity to exercise any decided antiseptic effect in that portion of the alimentary canal. The bicarbonate should be free from carbonate of sodium, as the mercuric chloride is decomposed by this salt and by alkalies generally. It is possible that the biniodide might be substituted to advantage in the formula above given.

In some experiments made by him several years since to determine the comparative antiseptic value of the salts and oxides of mercury, the following results were obtained:

	Active.	Failed
Biniodide of mercury . .	1 to 20,000	1 to 40,000
Bichloride of mercury . .	1 to 15,000	1 to 20,000
Protoidide of mercury .	1 to 10,000	1 to 20,000
Yellow oxide of mercury .	1 to 1,000	1 to 2,000
Black oxide of mercury .	1 to 500	1 to 1,000
Calomel	.....	1 to 100
Blue mass	.....	1 to 100

The bichloride, the biniodide and the oxides of mercury exhibit a decided inhibitory—antiseptic—effect upon the development of the bacteria of putrefaction in the proportion given in the second column, and we may use these figures as a guide in our efforts to secure intestinal antisepsis by means of these agents; although it is, of course, very uncertain how much of the soluble mercuric salt introduced into the stomach reaches the intestine in an active form—probably very little. In the formula which he gave to the physicians of the Garcini Hospital the amount of bichloride prescribed is really only in the proportion of 1 to 50,000 parts of the solution; but he considered it advisable to commence the treatment with an amount that was entirely safe, and to increase the dose afterward if it was found to be prudent and desirable to do so. Dr. Weiss has, in fact, increased the dose in several severe cases to 5 centigrammes per litre—1 to 20,000. As all of these cases recovered, we may infer that when largely diluted, as in this formula, and given in small quantities at short intervals, it may be safely administered in these doses; but, as already intimated, he is rather disposed to attribute the favorable course of the disease to the full alkaline treatment than to any antiseptic effect of the bichloride in the intestine. In the stomach, however, he would expect a decided antiseptic effect from the medicine as administered; and perhaps this is, after all, what is most needed.

Cocaine as a Means of Diagnosis in Laryngeal Maladies.—One of the most difficult points in laryngeal diseases is the diagnosis of the cause of œdematous infiltration, which may be due to tuberculous, syphilitic or cancerous origin. Oftentimes the general history gives no clue. In such cases cocaine proves of value; if a solution is applied to the swollen membrane and causes the congestion to disappear, it may be assumed that the cause is a simple catarrh.

If, however, the redness persists after repeated applications, the trouble is probably excited by elements of a more serious import.—*Revue de Thérapeutique*, August 1, 1888.

Epistaxis in Nephritis.—M. Gaucher considers persistent epistaxis an important symptom in early interstitial nephritis, especially in alcoholic subjects.—*Revue de Thérapeutique*, August 1, 1888.

Calomel in Tuberculous Processes.—Dr. G. Martell, of Breslau (*Prag. med. Woch.*, No. 25), has for three years studied the action of calomel upon tuberculous processes, and has come to the conclusion that it must be recognized as the best adapted specific antiseptic in the treatment of tuberculous conditions. With proper precautions, its use should not give rise to toxic manifestations. By the introduction of calomel, the use of mercury against internal tuberculous processes, particularly in the lungs, is made possible. Dusted on external tuberculous processes, it acts locally; inhaled, in pulmonary tuberculosis, by contact with the diseased textures. Calomel, given in powder, is also useful in tuberculous ulceration of the intestine; in the form of a soap, it is also efficient in tuberculous glandular enlargement. The author concludes this prefatory publication with the statement that he has had such good results from the use of calomel in tuberculous processes that he wishes clinical confirmation of his recommendation before proceeding with more extended observations.—*Wiener medizin. Wochenschr.*, July 1, 1888.

Pomade for Antiseptic Dressing.—

Iodoform.	℥ss.
Essence of eucalyptus . . .	℥iv.
Paraffine,	
Vaseline	āā ℥jss.

—*L'Union Médicale.*

Electricity in Incontinence of Urine.—In the *Gaceta de Enfermedades de los Organes Genito-Urinarios* for May, Dr. Alejandro Settier records two cases of complete incontinence of urine in which he used electrical treatment with success. The first patient was an officer, aged twenty-seven years, who had suffered from the infirmity for eight years; it dated from a time when he was kept under arrest for nine hours without being able to pass water. The urine dribbled away in small quantities every few minutes without his being conscious of the fact; he only knew that it had occurred by feeling wet. Belladonna, atropine and nux vomica had been given without effect. Electricity was applied in the manner recommended by Guyon, and in little more than three weeks the patient was able to hold his water for half an hour. After some months of persevering treatment he could retain his water for two hours during the day and only required to be awakened once in the night. Beyond this point, however, no further improvement could be obtained. The second patient was a boy, aged seven years, in whom the affection appeared to date almost from birth. The same treatment was employed, and in rather less than two months the little patient could control his bladder for thirty-five minutes, and, finally, was completely cured. Dr. Settier lays stress on the importance of continuing the treatment at short intervals for a considerable time after the bladder has recovered its tonicity.—*British Medical Journal*, July 28, 1888.

Injection of Iodoformized Ether in Abscesses.—M. Verneuil objects to the very large dose, one hundred grammes, of this solution into a suppurating cavity, and thinks the amount should be apportioned to each case. He has used it extensively with good results, and does not think it causes vomiting; but thinks that due to visceral affections, which have been shown to exist at the autopsies of all those cases in which vomiting was a prominent symptom.—*L'Abeille Médicale*, July 16, 1888.

Leiter's Tubes as a Sleep-producing Means.—Loebl (*Wiener medizin. Presse*) has within a short time advised three patients who complained of attacks of vertigo and fainting, of feelings of traction in the occipital region, of sensations of constriction about the head, to apply Leiter's tubes to the head nightly for an hour before going to bed. Each, independently of the others, in the course of some time, reported that the symptoms for which the apparatus was applied had only partly disappeared, but that sleep had been favorably influenced. One, a female, in whom the dizziness had not entirely gone but occurred more rarely than before, could not find words enough to express her gratification that sleep, which, for a long time, had been disturbed, was now deeper and lasted longer. The author was of the view that the rest, the horizontal position, the concentration of the attention upon the working of the apparatus for a short time had a *quasi* hypnotic influence. The patient, a woman of education, opposed this view, saying that during the application of the apparatus she had her attendant read to her, so that her attention was directed to the reading and not to the apparatus.—*Memorabilien*, July 6, 1888; from *Centralblatt für die gesammte Therapie*, 1888.

Varicose Tumor of Lid.—Chisolm reports a peculiar case occurring in a man of fifty-nine years. When he looks downward for a very short time, as when occupied in tying his shoe strings, seeking some small object on the floor, or in looking into his plate during a meal, the lower lid of the left eye rapidly swells until it attains the size of a small fowl's egg, encroaching upon the palpebral split, and temporarily shutting in the sight. When the head is lifted the swelling rapidly disappears. While the lid is enlarging the patient experiences the sensation of a warm current of liquid in the lid accompanied by a feeling of distention, but not of pain.

The surgical procedure by which a cure was effected was as follows: When the sac was most distended, a heavy seton composed of several strands of silk thread was passed through the whole length of the sac. The presence of this foreign body was designed to excite plastic inflammation in the lining surfaces of the venous sac. By the end of the fourth day there seemed to be much thickening of the skin, and the presumption was that plastic inflammation had been excited. With the seton left *in situ* the opposing walls of the sac were clamped together by passing three double sutures from the inner face of the lid through the tumor. The threads were secured over a roll of sponge which made direct pressure over the whole outer face of the lid. In passing these lid sutures each thread had two needles, one on each end of the thread. By passing one needle through the upper part of the lid and the other deep in the cul-de-sac, when the two ends of the thread as they appeared upon the face were firmly tied over the sponge, the clamp of thread on the conjunctiva within and the sponge without brought the whole opposing surfaces of the flattened tumor in contact and insured the complete obliteration of the sac. The presence of these three sutures with the sponge caused so much pain and inflam-

mation, with excessive chemosis, that they were removed with the seton on the third day. The swelling rapidly subsided upon the withdrawal of the threads. A week afterward the patient was dismissed with the inflammatory swelling nearly effaced.

The patient was heard from six weeks after the operation. The inflammatory thickening of the lid had altogether disappeared, and with it all trace of the swelling. The obliteration of the sac remains permanent.—*Archives of Ophthalmology*, June, 1888.

Endometritis.—Dumontpallier treats this affection by tampons saturated in zinc chloride solution and applied to the cavity of the uterus. He maintains the position of the uterus by pressure on the hypogastrium, and inserts the tampon, on a piece of whalebone, with a spiral motion. The pain does not commence directly, and only continues for a few moments. He reports most happy results.—*Gazette Médicale de Paris*, Aug. 4, 1888.

For the Gastro-intestinal Catarrh of Children the following formula is recommended (Lem. méd.):

Bismuth. salicylat. . .	4 to 5 parts.
Glycerin	10 to 20 parts.
Aquæ	100 parts.—M.

S. A tea or tablespoonful, according to age, every four hours.—*Deutsch. medicin. Wochenschr.*, July 26, 1888.

Pelvic Abscess Treated by Trephining.—Adding to the literature of these cases, the first of which was performed by Fischer, Hanover, in 1880, Dr. Rinne presents two cases of his own (*Archiv für klin. Chirurg.*, Bd. xxxiv. Heft. 4). In both of them he obtained favorable results. That occurring in a boy of nineteen years was first supposed to be coxalgia; but the excessive pain, high fever and, later on, the appearance of a fistula convinced him that the case was one of pelvic abscess. A transverse incision was made first above the greater trochanter, the periosteum opened by a crucial incision and the bone trephined. The finger introduced into the opening found the large cavity completely filled with pus, and masses of granulations which were removed by curetting. The inner surface of the ilium was covered with a soft granulating tissue, but no necrosis was discovered. Free drainage was established and over half a litre of pus was evacuated. The patient made a complete recovery in nine weeks.

The other case was treated in the same way, save that antiseptic precautions were more rigidly enforced and the bone opening was about the size of a *franc*. Notwithstanding that both cases had been of long duration, the bony tissue was not involved.

Cocaine as an Antiseptic.—Based on the antiseptic properties of cocaine taken internally, Luton (*Rev. gén. de clin. et de Thér.*, No. 4) has successfully used this remedy in variola. He thus sums up: 1. Cocaine used at the beginning of the disease notably lowers the temperature (from 104.9° to 98.6° in twenty-four hours). 2. At the same time, the eruption is checked and does not advance. 3. Given in the eruptive stage, cocaine is abortifacient; the pustules desiccate. 4. If the administration is stopped at this stage, the disease resumes its usual course, the temperature rises again, and the eruption pursues its normal sequence. 5. The treatment consists in the subcutaneous injection of four minims of a twenty per cent. solution, three or four times daily, and the internal administration of a solution of three and one-half grains of cocaine in four ounces of gum mixture, in tablespoonful doses.—*Deutsch. medicinische Wochenschrift*, July 12, 1888; from *Wiener medizin. Presse*, 1888, No. 12.

Salicylate of Sodium for Toothache.—Hofmann (*Prag. medizin. Wochenschr.*, No. 11, 1888) recommends salicylate of sodium as an internal remedy for toothache. The relief, however, is only temporary. The pain returns unless the cause is removed. Twelve grains are given at intervals of half an hour; as a rule, two to three doses suffice to allay the pain for one or more days.

The Administration of Turpentine.— The more extended use of turpentine as a medicament is handicapped by the unpleasantness of the remedy. There is no difficulty in the inhalation of the oil. A compress saturated with half an ounce held to the nose or placed on the pillow at night suffices for several hours. The internal administration, however, is more difficult. To overcome this objectionable feature, Frölich (*Deutsch. medizin. Wochenschr.*, July 19) has had made lozenges containing each 1½ and 3 drops of rectified oil of turpentine in combination with sugar. By this means the remedy is brought into direct contact with the mucous membrane, so increasing its efficacy.

The Local Treatment of Diseases of the Bladder.—Ultzmann considers topical treatment admissible only in chronic disorders of the bladder and the posterior portion of the urethra, and, as is not uncommon in gonorrhœa, these parts often require local treatment. For this purpose a thin catheter is passed into the bladder and then withdrawn until the flow of fluid ceases—the beak of the instrument thus lying at the neck of the bladder. If about ten ounces of an antiseptic fluid are now slowly injected, it will gradually flow over the diseased mucous membrane into the bladder, to be spontaneously evacuated by the patient after the removal of the catheter. In the treatment of the bladder itself, Ultzmann rejects the double current, because independently of the cases with shrinking of the bladder, the mucous membrane of the contracted organ is only partially washed. He prefers washing out the bladder by means of a soft catheter and a hand syringe, qualifying that the fluid must be completely evacuated. Ultzmann uses weak solutions, *e.g.*, one-sixteenth per cent. carbolic acid, one-half per cent. resorcin, one-tenth per cent. permanganate of potassium; in case of ammoniacal fermentation, he uses three drops of amyl hydride to a pint of water; in case of phosphaturia a one-tenth per cent. salicylic solution.—*Deutsch. medicin. Wochenschr.*, August 2.

Treatment of Diphtheria.—Couset, of Brussels, strongly urges the use of a mixture of tannin, mucilage and alcohol for local application. He applies it by means of a syringe and claims that the mucilage acts as a protection and keeps the ingredients longer in contact with the diseased surface. He cites a long series of cases which show the efficiency of his plan.—*Journal de Méd. et Chir. Pratiques*, August 4, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's address, No. 1004 Walnut St., Philadelphia.

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SATURDAY, AUGUST 25, 1888.

THE PRESENT STATUS OF THE IMPROVED CÆSAREAN OPERATION.

IN view of the fact that important Cæsarean successes are to be reported before the American Gynecological Society at its meeting next month in Washington, and the merits of the new method of operating fully discussed, we have thought it well to prepare some pertinent statements bearing upon the subject to be considered. As this society has in its active membership fourteen Cæsareanists, who during the past forty-one years have collectively performed twenty *gastro-hysterotomies*, twelve of them by the new or Sänger method; and its members have also performed nine of the fourteen *laparo-elytrotomies* upon record, we may expect the whole Cæsarean subject to be ably considered. Five operations under the improved method, performed by three members, with four recoveries, one case having been entirely hopeless, are yet to be reported.

Perhaps there are not five men in all Europe and America who know to what extent the improved operation has been performed, and how successful its results have been, in the hands of those engaged in it. We have noticed very erroneous statements made in regard to it before medical bodies, not the least of which is, that it owes its marvellous results to its having fallen into the hands of a few very skilful men. Now so far is this from being the case, that the 131 operations in our record have been the collective work of 73 men, in Germany, America, Austria, Italy, Russia, Switzerland, Holland, France, England, India and Denmark. It is true that Prof. Leopold, of Dresden, has had fourteen cases with only two deaths, and that Prof. Schauta, of Prague, formerly of Innsbruck, has operated six times without a death; but take the work of last year, 1887, in which Leopold had three operations without a death, and Zweifel five operations with one death, and we find a record of 44 cases under 34 operators, with only 9 deaths. There were 29 operations divided among as many operators, with a saving of $72\frac{12}{29}$ per cent. of the women, which is about equal to the general average of 95, saved out of the whole 131 cases.

The Dresden Maternity has had 20 operations, with but 2 deaths, under three operators, counting respectively 14, 5 and 1 each. The Leipzig Cæsareanists have a credit of 16 cases under six operators, or respectively 5, 5, 2, 2, 1, 1 each, with 2 deaths. These have been, until the present year, the special centres of the new operation; but Vienna promises to take the leading position, as she did through the obstetrical staff of her Krankenhaus, under the Porro operation, having already had seven cases this year, as far as heard from, under three operators, without a death. Beginners have much to encourage them in the records of the past, as *first* operations have been successfully performed in 47 out of 73 cases; and had not many of these cases been very unfavorable, or actually hopeless, the proportion might have been higher; and this is specially true of our own country. Skill in abdominal surgery and a thorough knowledge of, and adherence to the technique, with a fair case in hand, are the chief requisites for success. Drs. Zweifel, Paul Bar and Weber all lost their second cases after saving the first; Dr. Chiara lost his third, and Leopold his fourth.

The deaths after the Sänger-Cæsarean operation are to be considered under four heads, viz., 1. Those resulting from a preëxisting and hopeless disease, such as the last stages of cancer, Bright's kidney or cardiac lesions. 2. Those resulting indirectly from the operation, because of the physical exhaustion of the patient, the effects of long labor; or produced by futile attempts to deliver with the forceps, by version, or by craniotomy. 3. Those resulting from the parturient state, rather than the operation, as from diphtheritic endometritis or other *post-partum* disease, endemic in a hospital. And 4. Those the direct result of the operation in favorable subjects.

Peritonitis after a Cæsarean section is not necessarily a consequence of it; but may be entirely in-

dependent of it, as was the case with the third patient of Prof. Chiara, of Florence, operated upon on January 5, 1888. On the sixth day she bid fair to recover, as his first and second cases had done: on the seventh, violent peritonitis occurred, and on the eighth day she died. An autopsy showed that the woman had been the subject of ulcerative enteritis, presenting old cicatrices, and a recent ulcer which had perforated the wall of the bowel and allowed fecal matter to escape into the peritoneal cavity. The parts operated upon were not involved and the wounds had closed.

It should be borne in mind that the eliminative power of diseased kidneys may be very seriously diminished by an abdominal section, even so as to arrest their function and destroy a patient, who without such an exciting cause might have lived much longer, notwithstanding their diminished activity: hence where albuminuria exists the prognosis should be unfavorable: Dr. Beumer's case, the second on record, died from kidney disease in forty hours.

A very rapid pulse makes the prospect of an operation unfavorable, but has less weight now than under the old operation in determining a prognosis. We have known two women to recover whose pulses before the knife was used counted 143 and 142 beats, respectively. Long labor and exhaustion therefrom, where no futile attempts to deliver by the forceps, version or cranitomy have been made, do not necessarily render an operation hopeless, for cases have recovered in this country after labors of seven, ten and fourteen days, respectively. Experiments at forcible delivery, such as have been named, are much more likely to give an operation a fatal issue than a simple delay through ignorance.

In a hundred Cæsarean cases there will always be some that simply increase the general mortality, being in themselves positively hopeless for the mother. Where there exists, for example, a cancer of the vagina, rectum and nates, with a pulse of 168, as in the Polk case of New York, or where the urine is highly albuminous and shows tube-casts, as in the Norment case of Baltimore, the operation is in the interest of the fœtus and to diminish the agony of the mother. Such operations count one each, against the surgery, as statistics are too often estimated. Hopeless cases should occupy a middle position between those that have some hope of a favorable termination and those that are operated upon *post-mortem* to save the fœtus, and should be separately classified.

The prevalence of rickets and malacosteon must eventually determine the number of Cæsarean operations that are to be performed in a given city, district or centre. Under the old method, the chief records were made in Vienna, Paris, Milan and Naples. Paris introduced the *brise-tête*, and still, through her leading obstetricians, favors craniotomy and embryulcia, although the death-rate under infantile destruction is much higher than under the Sänger operations of Germany and Austria: she has only as yet had four of the new form of operation. Milan has not yet had a case, as her Maternity is under the direction of the originator of the Porro operation. The "Hospital for Incurables" in Naples still carries on the operation of Sigault, in which Prof. Ottavio Morisani has strong faith: he has once performed that of Sänger; but that was in July, 1886, and unfortunately the woman died of septic peritonitis in thirty hours. The uterine wound had closed, and there had been no escape of fluid into the peritoneal cavity. Although in a private letter he has expressed himself as pleased with the evident capabilities of the operation, he has not again made trial of it.

The obstetricians of the Vienna Krankenhaus, although much more tardy in their initial trial of the Sänger method, as compared with their adoption of that of Porro, have at the end of five years entered with zeal and success into the work. Dr. Ehrendorfer, of Vienna, operated upon a very unfavorable case in September, 1884, which terminated fatally; and it remained for Prof. August Breisky, in October, 1887, to make the second trial. Great credit is due him for his willingness, after having had three deaths in Prague, to make a fourth trial at Vienna of the new method, when he had had such a series of earlier successes with that of Porro. Happily he was repaid by entire success, and has the honor of having initiated in the Maternity a method of relief which appears destined to accomplish great results under her obsetrical staff, eight cases having already terminated with success in about as many months.

Cologne is another of the centres of Cæsarean necessity, where the old operation has had a mortality under one operator of sixteen cases out of twenty: we have not heard of any Sänger case there as yet. Besides the popularity shown by the 44 operations of Dresden, Leipzig and Vienna, the new Cæsarean method is in much favor in St. Petersburg, Freiburg, Hamburg, Berlin, Warsaw, Florence, Utrecht, Basle and New York. Great Britain will

be one of the last countries to give up her old prejudices. She tried laparo-elytrotomy twice; the Porro operation a few times; and she has had two Sänger cases, more or less modified, since October, 1886: the Porro method alone gave any encouragement by success.

The work of the present year shows a decided increase over that of the past, in the fact that twenty-six cases have been reported for the first six months, being nineteen European with three deaths, and seven American with three deaths. Two of the three deaths in our country were in subjects hopelessly diseased before the operation, and the third was at the time profoundly narcotised with morphia.

There have been sixteen Cæsarean operations in the United States since January 1, 1887, one-half of them in the present year, and all but one claiming to belong more or less closely to the German type. Of the *favorable* cases four recovered and one died: of the *unfavorable* cases, four recovered and five died; and of the *hopeless* cases both died: twelve of the sixteen children were saved.

As nearly as can now be ascertained, seventy-two of the first hundred Sänger cases in chronological order were saved, against forty-one of the first hundred under the Porro operation: the mortalities were therefore twenty-eight and fifty-nine per cent., respectively. The forty German and Austrian operators have performed eighty-six Sänger operations and saved seventy-one women, or a fraction over seventy-eight per cent. This leaves forty-five operations for the rest of the world, divided among thirty-three operators, saving twenty-four women, or $53\frac{1}{3}$ per cent., which is apparently not very creditable to the outside operators. As New York and Philadelphia have saved six women out of a total of eleven, under seven operators, the work in the two cities is only a fraction above this average, or $54\frac{6}{11}$ per cent. The difficulty in our country, which has had twenty Sänger operations with eleven deaths, or 55 per cent., lies mainly in the fact that the patient is too often subjected to the knife when in a condition unfavorable for recovery, as we have already shown by the record of the past eighteen months, which is our best, in which one-half of the cases were saved.

What chiefly concerns the American Gynecological Society is to determine how the improved Cæsarean operation of Germany may be made as successful here, as it has been in the country where it originated. Dr. Lusk has shown how it may be done with three cases without a death, and Dr. Kelly has followed his example with two. It is evident that it can be done, and the point to be attained is the presentation of the woman to the operator in a favorable state, which means where there has been no futile intermeddling. There was a time when every hospital Cæsarean case in the United States died, and the tenth was the first that did not: there have now been twenty cases and the recoveries have increased to seven, all being the result of the Sänger method. Much of the success in Europe has been attributed to her maternities, which were at one time regarded as pest-houses. The question between the relative value of the hospital and private house should be considered.

The yellow fever outbreak in Florida does not appear to be gaining any headway, and the indications from the present outlook are that it will not last long, unless the cases now under treatment at Jacksonville should develop new centres of dissemination, and the Jacksonville Board, of which Dr. Mitchell is President, is doing all it can to prevent this. The fumigation system now practised is the only new thing yet developed by the epidemic, that is to say, movable fumigating cars adapted for the use of sulphurous acid gas.

During the winter session of 1887–1888 over three hundred and thirty-five physicians attended the courses of instruction of the Post-Graduate Medical School of New York, an increase of more than sixty per cent. over last year. In the hospital department about four hundred operations were performed, all of major importance. This remarkable increase in the matriculation list has necessitated both larger clinical space and hospital accommodations, so that a new clinical amphitheatre has been erected and will be used for the first time at the opening of the winter session, September 17, 1888. A new and commodious laboratory has been erected and furnished with the latest apparatus for the study of normal and pathological tissues. The nose and throat clinical room has also been enlarged.

Professors Abraham Jacobi, Robert F. Weir, Joseph E. Winters, L. Bolton Bangs and Peter A. Callan have been appointed to the faculty.

Prof. Rydygier has been elected dean of the medical faculty at Cracow. The erection of the surgical clinic is in active progress, the formal laying of the corner-stone having taken place in June.

An Italian Congress for Hydrology and Climatology will be held on the 10th of October at Bologna. Prof. Muni will preside. An exposition will be held in conjunction with the Congress.

Prof. Laschkewitsch, of Charkow, recently deceased, has bequeathed 50,000 francs (about $12,500) for the erection of a laboratory for experimental physiology.

A new journal, entitled *La Médecine hypodermique, antisepsie médicale au moyen des injections sous-cutanes*, under the editorship of Dr. J. Roussel, has appeared at Paris.

The prize of the Caucasian Medical Society for this year has been awarded to Dr. Kuerharski, of St. Petersburg, for his thesis "Upon the Microörganisms of Trachoma." The paper has been published in the proceedings of the Society.

On the occasion of the Meeting of the British Medical Association at Glasgow, the University of Glasgow conferred the honorary degree of LL.D. upon a few of the distinguished members of the profession who attended the meeting. The foreign list comprised Dr. Fordyce Barker, of New York, Prof. Ball, of Paris, and Prof. Benedikt, of Vienna.

It is proposed by Sir William Bowman's friends to make public acknowledgment of his distinguished services to ophthalmology and to physiological science, in the form of a portrait of himself, together with a reprint of some of his works. A committee has been formed to carry out this project, of which Dr. George Johnson is treasurer.

The 1889 Meeting of the British Medical Association will be held at Leeds, and Mr. Wheelhouse has been selected as President-elect.

REVIEWS.

A System of Obstetrics, by American Authors. Edited by Barton Cooke Hirst, M.D., Associate Professor of Obstetrics in the University of Pennsylvania. Volume I. 8vo. pp. 808. Philadelphia: Lea Brothers & Co., 1888.

This, the companion volume to the "System of Gynecology, by American Authors," places before the profession the first half of the four volumes intended to form the series. Similar in plan and execution to its predecessor, it equals it in the excellence of the subject matter and the perfection of the publishers' art.

Of the eight articles which it contains five are distinctly practical: "The History of Obstetrics," by Dr. Engelmann, and "The Physiology of Ovulation," by Dr. Martin, are highly interesting from a scientific standpoint; while "The Mechanism of Labor," in six positions, by Dr. Penrose, is the literary embodiment of its author's professorial teachings for the last quarter of a century.

As a treatise for the use of the practitioner the volume will be found to represent admirably the obstetric science of the day, as exemplified in American practice.

The Ethics of Marriage. By H. S. Pomeroy, M.D., of Boston. With a Prefatory Note, by Thomas Addis Emmett, M.D., LL.D., of New York; and An Introduction, by Rev. J. T. Duryea, D.D., of Boston. 8vo. pp. 198. New York: Funk & Wagnalls, 1888.

The author states that his first intention was to write a tract, and in this he has been successful. He regards the production of healthy offspring as the chief end of marriage; and so impressed is he with the frequency of procured abortion, that he has written this tract to rouse the sentiments of his fellowmen, and to urge the enforcement of existing laws; he appends tables showing the legal statutes of the States and Territories upon this question. To encourage the timid, he urges that reproduction is a healthful, invigorating process, adapted to improve the health of those who may be frail, but without organic disease.

We have been fortunate in failing to encounter the aversion to childbearing among the well-to-do which occasions the writer such disquietude. The cultivation of outdoor sports has produced a generation of Americans quite capable of all the functions of the healthy animal, and not afraid of, or averse to reproduction. They and their children represent the mental and physical improvement of a generation, and promise better things than frequent abortions.

We know of but two statements which, in our experience, have influenced persons in this matter. First, there is no preventive of conception but complete abstinence; second, abortion is often fatal to the mother, always dangerous. Any argument or array of statistics which enforces these points is of value. But from the ethical argument we expect nothing; those who are base enough to contemplate abortion will heed no argument but that of self-interest.

We believe that the personal influence of the physician, in refusing to listen to requests to procure abortion, and his emphatic statement of facts, are his sphere of action in such matters, in which he is powerful. But from sermons by physicians and prescriptions by clergymen we hope for little good.

SOCIETY PROCEEDINGS.

CONGRESS ON TUBERCULOSIS OF MAN AND ANIMALS.

Held in Paris, July 25 to 31, 1888.

July 27th—Evening Session.

(*Specially reported for* The Medical News.)

(Continued from page 195.)

ON THE PERSISTENCE OF THE GERM OF TUBERCULOSIS IN RIVER WATER.

MM. Chantemesse and Widal, of Paris, stated that they made researches to ascertain how long the spores

of tuberculosis would live in Seine water. Some samples of water had been, some time previously, sterilized, and the cultures containing many tubercular spores were placed in them; others received the cultures directly without previous sterilization. Half the tubes of each section were kept at a temperature of 46.4° to 53.6° F.; the other half were kept at the temperature of the room, 59° to 68° F. Every eight days, water was taken from the tubes kept at a cold temperature and those at a moderate one, and were then placed in Pasteur's vials containing glycerized broth, according to Nocard and Roux's method. Pasteur's vials were then placed in the heating stove. At the end of twenty days and one month, one cubic centimeter of each of the tubes which, without previous sterilization, had received germs of tuberculosis was inoculated into the peritoneum of guinea-pigs. The results were as follows: The germ of tuberculosis was preserved for fifty days in sterilized Seine or river water kept between 46.4° and 53.6° F. It was preserved for seventy days in river water, previously sterilized, and kept at a temperature of from 59° to 68° F.

Besides the question of the vitality of the tubercular germs, is the no less important problem of their virulence. The guinea-pigs inoculated with one cubic centimeter of water, which contained for fifteen days germs of tuberculosis, were sacrificed after two and a half months. Not one presented any trace of tuberculosis. This result was due to the feeble dose of inoculated germs, or to the attenuation of these germs in a more or less cold water, or to both of these causes.

M. Arloing, of Lyons, in connection with the facts presented by MM. Chantemesse and Widal, desired to call attention to experiments made by MM. Galtier and Cadéac, in regard to the resistance of the bacilli in contact with river water. These experiments had been made under two conditions. Tubercular fragments were placed in running water; fifteen days later the fragments were very virulent. In running water the virulence was maintained for one and a half months; in stagnant water, an inoculation made on the 120th day gave positive results, while one made on the 123d day was negative.

General or Local Means Capable of Arresting the Extension of Experimental Tuberculosis.

M. Arloing has tried to prevent the extension of tuberculosis, as some have tried to prevent the spread of syphilis, by extirpation of the chancre and neighboring lymphatic gland. In the guinea-pig, the best place for inoculation is the mammary gland, which also contains the nearest lympathic gland. He inoculated several of these animals, and on some of them, on the seventh and fifteenth day, he performed the total extirpation of the initial lesion and neighboring gland; and then killed all the guinea-pigs on the same day. He found them all tuberculized to the same degree, whether the gland and point of inoculation had or had not been excised. In another set of experiments he excised on the ninth day, before there were any inflammatory signs of the success of the inoculation, but, notwithstanding that, all the animals became sterilized.

It had been hoped to attenuate the severity of tuberculosis by inoculation of a virus which was attenuated by passing through an animal, but inoculation of this attenuated tuberculosis does not prevent the evolution of true tuberculosis.

Scrofulosis, which has been considered as an attenuated tuberculosis, can be inoculated; but a true tubercular virus will also take on the same subject and produce all the lesions of tuberculosis. Hence we cannot rely on an attenuated tuberculous virus, which would be rendered so by passing through the organism of an ox.

Like M. de Brun, in regard to malaria, he endeavored to ascertain whether certain antagonistic microörganisms would not prevent the growth or development of the tubercle bacilli. As the microbe of typhoid fever had been cited as an opponent of Koch's bacillus, he saturated guinea-pigs with the typhoid virus: tuberculosis developed perfectly on them nevertheless. He still hopes that a vaccine of tuberculosis will be found; and he mentioned the fact that MM. Raymond and Arthaud have rendered animals less apt to contract tuberculosis by a tannic impregnation.

Bacterial Associations of Tubercle Bacillus.

M. Babès, of Bucharest, said that out of 73 post-mortems of children, he found 65 cases of tuberculosis of the glands. Koch's bacillus was found 45 times. Out of 52 post-mortems of extensive tuberculosis, Koch's bacillus was only found alone 10 times. In 42 out of the 52, tuberculosis was very apparent; but in all those cases Koch's bacillus was associated with other microorganisms. The bacteria that complicate tuberculosis in children are the streptococcus aureus and albus and the pus streptococcus.

In tuberculous peneumonia, pleurisy, peritonitis, or meningitis, Koch's bacillus is always found associated with other microbes; and these additional microbes are those that are found and produce the disease of the organs invoved—Friedländer's microbe for pneumonia, etc.

In local tuberculosis of bones and articulations we have a complication by the addition of the pus streptococcus, which is found in all organisms. Tubercular lesions are the doorway by which these different microbes invade the organism, and mix with the tubercle bacillus. In children especially, tuberculosis rarely kills without additional complications; one must also admit that latent encapsulated tuberculosis, very common in children under the form of tuberculosis of the lymphatic glands, can become very active and severe under the influence of other microbes.

Ganglionic Caseo-tuberculosis.

M. Duret, of Lille, described three forms of tuberculosis of the lymphatic glands, which are each to be treated in a different manner: 1st, a fibro-caseous form; 2d, a caseous-tuberculous form; 3d, an ulcerative or fistulous form. For the fibro-caseous form, he recommends simple incision with the knife and extirpation of the glands. In simple caseo-tuberculosis, we must distinguish those forms in which the tuberculosed lymphatic glands are separated in chains, and those that form one single, compact and agglomerated mass.

In the first case, each gland should be treated by igni-puncture; in the second case, the entire mass must be incised with the red-hot iron, in the form of a cross. In the fistulous form, these must be opened with the thermocautery and the suppurating cavities thoroughly cauterized.

ON PSEUDO-TUBERCULOSIS OF MAN AND ANIMALS.

MM. Cornil and Toupet, of Paris, said that at the beginning of this year Dr. Routzer gave them for examination a tumor, the size of a pea, which had been extirpated from a finger. On microscopical examination, it was found to be composed of fibrous tissue, in the middle of which were a number of round embryonal nodules, looking like tubercular follicles; they also found amidst these characteristic giant-cells. Bacilli, however, could not be found. These nodules were quite limited at their periphery, and no extension of embryonal cells from them could be seen; finally, in the centre of the follicles, they could not find any degenerated cells, as are found in a typical tubercle. This little tumor had for its origin a small wound produced by an oyster-shell; the wound healed rapidly, but an indurated nodule remained beneath the skin. Having learned the origin of the trouble, they examined their specimens again, and found little fragments of oyster-shell; they diagnosed pseudo-tuberculosis produced by the penetration of small foreign bodies under the skin.

M. Cornil mentioned an analogous case, observed in an antelope, which had apparently tuberculous nodules, but no bacilli could be found, except an ovoidal bacteria, which was probably the cause of the affection; but here was an anatomical lesion, identical with the one produced in the tissues by Koch's bacillus; this is a new example of pseudo-tuberculosis. Can the difference between true and pseudo-tuberculosis always be made? In the oyster-shell pseudo-tuberculosis they could find no degenerated cells in the centre; while in the antelope, on the contrary, the degenerated part was very large and contained filaments of fibrin which are not found in true tuberculosis.

RAW MEAT AND BLOOD AS FOOD FOR TUBERCULAR PATIENTS.

M. Hureau de Villeneuve, of Paris, considered not only the use of raw meat a dangerous proceeding, on account of the microörganisms which might be taken with it, but also he did not think it of great use as a food. Raw meat is not always palatable, and with phthisical patients we must be particularly careful not to produce a disgust for food. To his phthisical patients he gives excitants, like strychnia and arsenious acid, which increase the appetite remarkably; as to food, he gives the patient what he likes.

ON SURGICAL INTERVENTION IN TUBERCULOUS OSTEO-ARTHRITIS OF THE FOOT OF A CHILD.

M. Redard, of Paris, thinks that even severe forms of tuberculosis of the ankle-joint in children can be cured by free opening of the articulation, followed by thorough scraping and cauterization with the thermo-cautery; the tuberculosed articulation must be thoroughly disinfected before and after the operation; cauterization with the red-hot iron of every tuberculous fistula or abscess; careful drainage, antiseptic bath, immobilization in plaster-of-Paris; the final result, if all precautions are taken, is a very satisfactory one.

M. Verneuil said that he had always recommended the preservation of tuberculosed articulations in children, and, above all, thorough disinfection before the knife is used; antiseptic precautions and immobility will do the rest; let us not excise a joint too rapidly, for we are able, in many cases, to preserve an articulation to our patients by acting otherwise.

July 28th—Morning Session.

Second Question: Human Races, Animal Species and Organic Mediums studied in regard to their aptitude to Tuberculosis in Asia Minor.

TUBERCULAR CIRRHOSIS.

M. Hanot, of Paris, is certain of a definite cirrhosis, having all the anatomical and clinical characters of ordinary cirrhosis, and yet due to tuberculosis. In tubercular cirrhosis one must not be astonished to find that the lesions of the intra-hepatic connective tissue are very slightly marked, for as soon as the liver is involved the tuberculosis of the lung takes a very rapid course. Even in alcoholic atrophic cirrhosis, we find a very limited development of the sclerotic tissue; and in certain acute forms of alcoholic cirrhosis, the new formation of connective tissue is almost entirely absent. As he should occupy himself exclusively with the lesions of the connective tissue of the liver of tubercular patients, he should not study the cellular lesions which are always present.

We are certain to-day of the mode by which tubercle bacilli reach the portal system. Intestinal lesions are not at all necessary to infect the liver, as demonstrated by Weigert, but the portal vein and lymphatics are quite able to absorb the bacilli without any intestinal lesions. How easy their absorption must be, then, when such local lesions exist in the intestine. When tubercles are found in great quantity in the substance of the liver, their etiology is easily explained; but when only very few are found, and do not occupy the neighborhood of the portal system, the action of bacilli is not so easily explained. We must then admit, like Chaon, that intestinal lesions are produced in tuberculosis, without the presence of the bacillus, as it takes place for syphilis where gummatous tumors are not so often present. He thinks, also, that the action of the soluble products derived from the microbes, can explain why this bacillus acts at a distance and not only locally. Tubercular cirrhosis has also its clinical characters; it has a typical ascites, an increase of the superficial abdominal veins, a diminution in the size of the liver. He has often thought, with M. Lauth, that the ascitic form of tubercular peritonitis could be explained by the presence of a tubercular cirrhosis, and that tubercular peritonitis is often nothing else but a tubercular cirrhosis, as is discovered at the autopsy.

ON THE FAMILIES OF TUBERCULOUS PATIENTS.

M. Ricochon, of Champdeniers, has been able to collect the personal and hereditary antecedents of 53 patients. He has found in the parentage or collateral relations, tuberculosis 181 times; 83 different neuroses—epilepsy, eclampsia, chorea, infantile convulsions, etc. In 38 patients there was congenital dislocation of the hip-joint, 33 bony deviations, next came pharyngeal and laryngeal diphtheria, cancers, herniæ, nævi, etc. The osseous deviations, congenital dislocations of the hip, herniæ, varicosed veins, seem to indicate a weakness in the fibrous and osseous tissues. This is due to a hypermineralization of the tissues, a lack of the mineral substance, which, rendering the tissues less resistant, become a favorable field for the development of tuberculosis.

HEREDITY AND CONTAGION OF TUBERCULOSIS.

M. FERRAND, of Paris, gave the observations of three families, showing an undeniable hereditary influence, in which contagion can only be secondary. One of them is composed of the father, mother and seven children; father died of phthisis at the age of seventy-five; the mother, eighty years, is perfectly well. All the children, however, have died of tubercular manifestations, white swelling, meningitis; the daughters, having married, lost also several of their children from similar diseases. In a second family, the father was considered tuberculous at twenty, a brother of his died phthisical, the mother died of cancer of the liver; they had two daughters, one died of tuberculosis at twenty-one, the other, although having had hemoptysis, lived, had four children, one of whom died very young. In a third family, the mother alone was tubercular and lost one child phthisical.

We find here that cohabitation has not produced tuberculosis in the living and healthy husband. Contagion of tuberculosis is not at all proven.

HEREDITY OF TUBERCULOSIS THROUGH THE PLACENTA.

M. MALVOZ, of Liege, thinks, concerning the passage of the microörganism from the mother to the fœtus, that it cannot filtrate through the placenta, but that for such transmission placentary lesions are necessary, lesions produced by the organisms themselves. When in malignant carbuncle, or chicken cholera, we find microorganisms in the fœtus of the inoculated animal, we find hemorrhagic lesions of the placenta, which is in accordance with Wyssokowitch's law—that is, that microorganisms can pass in the secreted fluids of the organism only if glandular lesions exist.

For the transmission of tuberculosis it is necessary that a small tubercle should break down, to enable the microbes to reach a fœtus. Such lesions, however, are very rare, as is general infection of the blood in tuberculosis; this condition is also rare, for the placenta is not favorable to the implantation of bacteria. When we speak of heredity of tuberculosis, we must have in view the fact that children of tubercular parents are more prone to the cultivation of the tubercle bacillus, and, in addition, are liable to infection, living with tubercular parents.

CONTAGION OF TUBERCULOSIS OF MAN TO CHICKENS.

M. CAGNY, of Senlis, presented the following interesting observation: on a farm a mother died of galloping consumption; her son, aged twenty-one, was also phthisical. He observed, also, that all the hens of the farm became thin, and when examined their livers were found filled with tubercles; the young man told him afterward that he was in the habit of spitting on the ground to see the hens run and pick it up. All the animals being then sacrificed and the poultry-yard well disinfected, no more tuberculosis was observed.

TUBERCULOSIS AND ARTHRITISM.

M. JONESCO, of Paris, stated that at the recent Congress of Surgery M. Peyrot and himself called attention to a tubercular paronychia on a rhumatoid nodosity. M. Verneuil remarked the rarity of the combination of the two diseases. He presented to-day another observation: a man, aged thirty, father tuberculous and mother rheumatic. Patient has had from his youth a number of attacks of articular rheumatism, the last ones having localized themselves in the lower extremities. He then married, had four children; three of them died of different tubercular manifestations; he is finally taken with hemoptysis and a fungous arthritis of the right knee. When he examined him, he had ankylosis of the right knee, and presented signs of tubercular arthritis of the left knee, and a tuberculization of the right upper lung. This rheumatism has probably created in his articulations a "locus minoris resistentiæ" for the penetration of the tubercle bacilli; it is in that manner that we can explain the combination of these two diseases.

M. VERNEUIL said that arthritism and tuberculosis are rarely associated, but we can find a sort of morbid hybrid state between the two diseases; this combination can usually be explained by heredity, the father suffering from one affection, the mother having the other. The same with anthrax; it is very rare to find it on scrofulous patients, and when they are associated it is usually found that one of the parents is arthritic, while the other is tuberculous.

MICRO-POLYADENOPATHY OF CHILDREN.

M. LEGROUX, of Paris, said that we all know of these small enlargements of the lympathic glands, which are commonly found in the neck of children, especially those living in places where hygienic conditions are wanting. To this lesion he had given the name of infantile micro-polyadenopathy. The inflamed glands are particularly situated at the neck and can be attributed to dentition, or the lympathic state. They are movable and painless; they are also found in the axilla, inguinal region, etc.; they may disappear with the advance of age, but are also frequently followed by variable accidents. They are found in children presenting tuberculous manifestations. If such children die of measles, for instance, we often find caseous tracheo-bronchial glands, or latent tubercular pleurisy, or peritonitis. If meningitis appears and this polyadenitis exists, we are able to affirm a tubercular meningitis.

M. DAREMBERG, of Cannes, had seen, on several occasions, this specific polyadenopathy in relation with tubercular tonsils; this tubercular tonsillitis is easily produced by the cohabitation of the children of tubercular patients.

NATURE OF THE ATYPICAL VARIETIES OF LUPUS VULGARIS.

M. LELOIR, of Lille, said that the classical lupus is nothing else but a tuberculosis of the skin; but other varieties of this disease he had observed for several years, which were different in a clinical, as well as in an anatomico-pathological point of view.

Tubercular lupus has a vitreous, semi-opaque appearance, with, occasionally, small cysts having undergone colloid degeneration, and leaving small cavities. Section of these nodules shows cysts colored ochre-yellow by picro-carmine, with a vitreous appearance, and the characters of colloid degeneration; these cysts are the central part of the lupus nodules; they are surrounded by a mass of embryonal cells; this central portion sometimes contains giant-cells, and occasionally tubercular bacilli can be discovered; these nodules have hardly any bloodvessels.

From numerous inoculations he concludes that this variety of lupus is only an attenuated form of tubercle;

its relation to lupus vulgaris is the same as the colloid tuberculosis of the lung described by Grancher is to the ordinary tuberculosis of the same organ; this lupus could be called lupus vulgaris—colloid variety. Another variety of lupus presents a transparent, soft, gelatinous appearance, with a great number of small bloodvessels easily seen. On their surface we often see small cysts containing a mucous substance; these lupus tubercles lacerate easily.

In this variety the embryonic cells are irregularly distributed and not compact. The dermoid connective tissue is deeply involved, and the elastic tissue fibres have almost all disappeared. Colored with picro-carmine, the embryonal cells appear red, while the disease-germ is yellow. Some of these embryonal cells have undergone mucoid degeneration, and form little nodules, composed of four to eight cells; they agglomerate around the blood-vessels; very rarely do they form a mass of cells. In those nodules giant cells are extremely rare, and bacilli are only found in their immediate neighborhood. This tubercular lupus contains numerous dilated blood-vessels.

His experimental researches with fragments of these nodules led him to believe that this atypical lupus vulgaris is nothing else but an attenuated tuberculosis of the skin; that it is a mucoid variety of lupus.

Another variety of lupus, sclerotic lupus, is to the lupus vulgaris what fibroid tuberculosis of the lung is to tuberculosis vulgaris of the same organ.

Since 1882 he had made many inoculations. The date of the appearance of this experimental tuberculosis is later for the sclerotic lupus than for the vulgaris variety. Sclerotic lupus is, then, another variety of tuberculosis of the lung.

These three forms of lupus—colloid, mucoid and sclerotic or fibroid, are attenuated forms of the lupus vulgaris, because they contain very few bacilli.

SUPPURATIVE FORM OF TUBERCULAR LUPUS.

MM. HALLOPEAU and WICKHAM, of Paris, have observed a mixed cutaneous tuberculosis, presenting both gummata and suppurated lupus nodules.

In one case, following a horse-bite, it was difficult to differentiate it from chronic farcy; the question was decided by inoculations and cultures made by M. Nocard and themselves, giving negative results. The cause of the suppuration they attribute not to Koch's or pus microörganisms, but to the action of the substances produced by these microbes, such as leucomaines; such is the explanation they also give for the formation of the specific lesions of tuberculosis.

EVOLUTION AND THERAPEUTICS OF TUBERCULOSIS IN A HEALTHY MEDIUM.

M. CALMETTE, of St. Cyr, has studied the evolution of tuberculosis in an eminently healthy place. External manifestations of tuberculosis are rare. Frequently tubercular peritonitis and broncho-pneumonia are met with, also tuberculosis of the viscera; hence he insists on treating the intestinal canal antiseptically, and the substances he has found most efficient were the preparations of phosphorus associated with sea water. He gave daily 0.5 gramme of phosphoric oil (the phosphorated oil of the French Codex), composed as follows:

R.—White phosphorus	1 part.
Sweet almond oil	95 parts.
Officinal ether	4 "

Add the ether after cooling.

For *internal* administration the following is prepared:

R.—Phosphorated oil	10 parts.
Sweet almond oil	90 "

or he gives the phosphate of zinc, in the dose of $\frac{1}{15}$ grain, at the same time prescribing two tumblerfuls of sea water.

ON THE EVOLUTION OF EXPERIMENTAL TUBERCULOSIS IN CHILDREN.

M. ARLOING said that he found it difficult to render the rabbit tuberculous. If he inoculated ten rabbits and ten guinea-pigs, he should find certain rabbits remain unaffected, while the guinea-pigs are all diseased; the guinea-pig can, then, be considered as a true reagent for the diagnosis of a questionable tubercular lesion. If we desire to know, without killing the animal, whether the inoculation gives a positive result, we can determine by ascertaining whether the neighboring lymphatic glands are involved. He has also observed that the spleen of the guinea-pig is early involved, while in the rabbit it takes place at a very late period, tuberculosis of the lung precedes that of the spleen in rabbits. As the spleen in guinea-pigs is so rapidly involved, he asked himself whether there could not exist a derivative lymphatic current to take the virus from the lower extremity to the spleen directly, without passing through the vena cava. The inoculations from the human lung to the rabbit give only a visceral tuberculosis, without involvement of the lymphatic glands of the inoculated extremity. While bovine tuberculosis appears very severe in the rabbit, he thinks that bovine tubercular virus presents a greater virulence than that of man.

M. NOCARD confirmed absolutely and on every point the opinions expressed by M. Arloing.

M. VALUDE, after an inoculation of two months' standing in rabbits, found only a few disseminated tubercles in the liver and kidneys, but rarely in the spleen or lung.

M. LELOIR has observed this perfect inoculation of the guinea-pig with lupus, but the inoculation must be made on the peritoneum and especially on the epiploon; if introduced in the cellular tissue, we may have negative results

M. VERNEUIL also agreed on the fact, that to assure promptly and surely the diagnosis of tuberculosis, the guinea-pig is the animal to be chosen, and the abdomen must be the seat of the inoculation.

ACUTE INFECTUOUS TUBERCULOUS FEVER.

M. JEANNEL, of Toulouse, said that there are certain conditions which are mistaken for early symptoms of typhoid fever, but which are in reality the prodromic stage of a coming tuberculosis. It is a real febrile tuberculosis and the temperature chart only will differentiate it from typhoid fever. In tuberculous fever, the temperature curve ascends suddenly, to remain on the same level for some time, when it comes down to a lower level. Then, too, tuberculous fever is reduced rapidly by antipyrin in small and continuous doses, whereas this drug is of no great use in typhoid fever. M. Landouzy has

also studied and described previously this particular disease.

HEREDITY OF TUBERCULOSIS AND ITS SPREAD FROM ANIMAL TO ANIMAL.

M. Bang, of Copenhagen, claims that heredity of tuberculosis in animals is rare; he consulted 165 veterinary surgeons and only 32 asserted that they had found tuberculosis in newborn calves, and these calves were sufficiently fat not to be suspected of tuberculosis.

M. Thierry, of Auxerre, related the case of a stable where all the cows became tuberculous; it was ascertained that they all took their food from the same bucket, which probably contained the specific microbes, for its removal coincided with the disappearance of the disease.

M. Van Hersten, of Brussels, mentioned the fact that in Belgium the number of tubercular cows is very large while the number of diseased calves is very small, only 1 calf out of 650, while 1 cow in 100 is tuberculous, which proves that tuberculosis is not so often hereditary and that the disease develops in the later part of life.

CORRESPONDENCE.

SOME GLIMPSES OF BRITISH SURGERY.

To the Editor of The Medical News,

Sir: During a stay of some weeks in Great Britain I have had opportunities of visiting some of the best known surgeons and of observing their methods of work, many of which seem to me worthy of mention.

In Glasgow I had the pleasure of spending a few hours with Mr. Macewen, in the wards of the Glasgow Royal Infirmary, and was especially interested in the case, which he has reported in his paper on the Osteogenesis of Bone, of almost complete reformation of the humerus, after a crushing accident of unusual extent and severity. Most of the bone was lost at the time of the accident, and the fragments which remained were torn from their connection with the periosteum. They were reimplanted in the soft tissues and served as foci for a new formation, which has now given the lad a useful limb.

Two cases of the radical cure of hernia were in the ward, in the early stages of convalescence,—too early to permit of definite judgment as to the final result. Mr. Macewen's faith in the superiority of his method over other operative procedures in these cases remains undiminished, and he kindly spent some time in explaining to me, with the aid of models and specimens, the smaller details of his plan. An interesting specimen, taken from a patient upon whom he had performed the operation for radical cure, some years ago, and who had recently died of acute disease, showed the entire obliteration of the internal ring and the associated pouch of peritoneum, which is aimed at by Macewen's operation. The thickening caused by the sac folded upon itself and placed within the ring was still perceptible. Macewen pays comparatively little attention to the canal itself and to the external ring, believing that the permanency of result, which is the object aimed at, can only be obtained by the more or less perfect closure of the internal ring and the fortification of the adjoining parts.

There was walking about the ward an interesting case of recent trephining for cerebral abscess, depending upon otitis media and diagnosed by cerebral localization.

At the London Hospital, with Mr. Frederick Treves, I saw a case of pancreatic cyst which had been tapped and evacuated a few days previously, the contents measuring one and a half gallons. The operation was undertaken for a supposed sarcomatous tumor, and Mr. Treves remarked that, among the sixteen cases which he had been able to collect, there was not one in which the diagnosis had been made prior to operation. Two cases, however, were reported in the *Chicago Medical Journal* during the early part of the present year, in which, if I am not mistaken, such a diagnosis had been made, in one case by Dr. Fenger, in the other by Dr. Steele.

In showing a case of hydrocele, Mr. Treves alluded to the treatment by injection of iodine as extremely unsatisfactory, remarking that there were at least 30 per cent of failures, but adding that, in many cases, this was due to the employment of an insufficient quantity of the tincture. If he had said that, in nearly every case of failure, the cause was to be sought in this direction, his statement would have been more in accord with our Philadelphia experience. In many dozens of cases of this character upon which I have operated, or which I have observed in the practice of Dr. Agnew, or of my colleagues, I do not remember a half dozen failures where any attention was paid to proportioning the quantity of iodine employed to the size of the sac.

Mr. Treves treats all his compound fractures in the open air, according to the following plan: When the case is admitted to the hospital, the wound and surrounding part are cleansed, but no attempt is made to arrest the oozing of blood, which, in the great majority of these cases, is still going on. Iodoform is sprinkled in large quantities and at short intervals over the wound and adjoining parts, and this is continued sometimes for two or three days. At the end of that time a scab has formed, beneath which, Mr. Treves claims, cicatrization and repair take place in the most perfect aseptic manner. The infiltration of the muscles and connective tissue, which sometimes follows the sealing of the wound in compound fracture, while oozing is still going on, is thus avoided, and with the least possible disturbance of the parts. During the entire course of the case, the affected limb, with the necessary fixation apparatus, is kept uncovered, Mr. Treves believing that the atmosphere which surrounds such a part beneath the bed-clothes is much more likely to be septic than the general atmosphere of the ward. His results in a number of cases certainly seem to justify his confidence in this method, an elevation of temperature of even a degree being almost unknown.

I saw some excellent results in cases of extensive lacerated wounds and crushes involving joints, obtained by the unusually free use of irrigation. Instead of the usual drip, a stream of water of considerable size, almost as large as a little finger, is kept running over or through the injured part for long periods, with the result, in at least three cases which I saw, of preserving limbs and joints which would have ordinarily undergone amputation or excision. The irrigating apparatus, so far as the supply is concerned, is directly connected with the general plumbing of the hospital, and arrangements for carrying off the waste are just being made. I have long

been familiar with the excellent results obtained in similar cases by our own method, but would now feel inclined to try Mr. Treves's plan in cases of greater severity.

I saw many other interesting cases, among them one of hysterectomy, for a fibroid weighing twenty-two and a half pounds, accompanied with the removal of both ovaries and appendages, but have not time to describe them.

At the Children's Hospital, Great Ormonde Street, built on the site of a house formerly occupied by Lord Macaulay, I was greatly interested in the wards and the work of Mr. Edmund Owen. In a double osteotomy for outcurving tibiæ the operation was performed by the open method, the bones being divided with a saw. As Mr. Owen remarked, operations with the chisel in this region are apt to be practically open ones, even although the attempt is made to render them subcutaneous, and the use of the saw makes the whole operation so much easier and more rapid in execution. An excision of the shoulder-joint for caries was performed by him in a masterly manner, removal of the head of the bone occupying less than five minutes from the time of the first incision through the soft parts, and the whole operation, including the dressing, being completed inside of twenty minutes. A number of interesting cases of tenotomy, osteotomy and excision were convalescent in the pretty little ward which, although it was built twenty-five years ago, has hard wood floors and glazed brick walls and most admirable provision for light and ventilation.

The great prevalence of rickets in this country, as compared with our own, is quite apparent in the service of this, as of all the other London hospitals, nor does it seem to be confined to the large cities. Professor Humphrey, at Cambridge, called my attention to the number of cases of this sort which he treated in his outpatient service, which is derived largely from an agricultural population. He believes that the majority of such cases outgrow the deformity, as is shown by the comparatively small number of adults who are so affected. In deformities of a sufficient degree to require treatment, Mr. Owen greatly prefers operative measures to the use of apparatus, which he has found tedious and, in the main, unsatisfactory. Among his ward cases I saw one of reoperation for club-foot (the first operation having been performed by another surgeon), in which Mr. Owens had used the method recommended by Dr. Willard, of Philadelphia, and of which he spoke very highly.

A day or two ago I was present, by invitation of Sir Spencer Wells, at a private ovariotomy, which was particularly interesting as being the second one performed by him upon the same patient. The first operation, done in 1864, will be found reported in his series of cases as No. 94. The left ovary was then removed for cystic disease, the pedicle being treated by the clamp method then in vogue. The patient at that time was forty years of age. Now, at the age of sixty-four, a large multilocular cyst had formed in connection with the right ovary. The operation was done with the most careful antiseptic precautions and under the spray. A short incision was made through the scarcely discernible scar of the old operation, the pedicle of the former tumor being found attached to the abdominal wall a little to the left of the median line. One of the loculi of the cyst was tapped, reducing its size sufficiently to permit of its easy extraction. The pedicle was long and slightly twisted. It was ligatured first in two portions by transfixion, and then the whole mass was included in a second single ligature. The operation was done with extreme dexterity, as might be expected, but with apparent deliberation; it was, however, completed, including the stitching and dressing, in about fifteen minutes from the time the first incision was made. Sir Spencer was ably assisted by Mr. Meredith, one of the rising men in this line of work in London, who comes from an old and well-known Philadelphia family, although he has lived abroad almost all his life. Sir Spencer Wells shows no abatement in his outspoken opposition to the somewhat indiscriminate ovarian surgery of the present day, and believes that many hundreds of unnecessary and unjustifiable operations are now being performed,—operations which will not bear the test of time or further experience.

The anæsthetic employed during the operation was methylene, of which certainly not more than two or three drachms were used. There was no apparent period of excitement, the patient came rapidly under its influence and almost as rapidly recovered consciousness, and there were no alarming symptoms of any sort. It was administered by Dr. Day, one of the physicians to the Samaritan Hospital, who has given it in between twelve hundred and thirteen hundred cases, and without difficulty of any kind. The color of the face and the character of the respiration are his guide, no attention being paid to the pulse. I see that he has reported, in the *British Medical Journal* of July 14th, the interesting fact that twelve drachms is the largest quantity he has ever administered for an operation lasting one hour, and that Sir Spencer Wells has never occupied a longer time than this for even his worst operations, including nephrectomies, hysterectomies and all the various forms of abdominal tumors, with and without complications. This statement was afterward confirmed by Sir Spencer Wells, in a conversation with me at his office, and includes a recent case of splenectomy, which recovered without a bad symptom.

My most interesting time in London has been spent in the wards and the operating theatre of Sir Joseph Lister, and I regret that I can scarcely do more than allude to the many interesting and remarkable cases which I have there seen. The admiration which I already felt for the man who has done more to advance surgery, to make it an exact science, and to lessen the sum total of human suffering than any other individual in the history of our profession, has increased by personal acquaintance with him. Like all the other truly great men whom I have ever had the good fortune to meet, he is perfectly simple and unassuming in his manner and very approachable by any one who comes to him with a desire to learn. As a teacher, he is clear and, at the same time, comprehensive, speaking in an ordinary quiet, conversational tone, saying but little during the actual progress of an operation, but explaining in advance, with great care, the indications for it, the particular method which he intends to employ, and his reasons for its selection. As an operator, he is deliberate, but very neat and accurate in all his work with the knife, wasting no time whatever, but sacrificing nothing for the sake of brilliancy. It is scarcely necessary to say that in all his work, from the preliminary preparation to the final dressing, the most

minute and scrupulous attention is paid to antiseptic details—to the arrest of hemorrhage, to the provision for drainage, to the approximation of the wound without tension. His views as to the importance of all of these points have been fully and frequently described by himself and his followers.

As his antiseptic methods are constantly undergoing modification in his efforts to find the typically perfect antiseptic dresssing, which shall be at once cheap, soft and pliable, non-irritating, yet permanently active, it may be worth while to mention the details of his present method. The skin is cleaned with a 1 : 20 solution of carbolic acid in a 1 : 500 solution of bichloride, the carbolic acid, by its affinity for oily matters, carrying the more active mercurial solution into the recesses of the skin, the mixture being much more potent than either the carbolic or bichloride solutions separately. Next to the wound, in place of the old silk protective, is laid a piece of gauze which originally contained Sal Alembroth, the latter ingredient being, however, first washed out of it in a 1 : 20 carbolic solution; this is with the idea of protecting the edges of the wound from permanent contact with the mercurial salt, which is more or less irritating. The carbolic in the piece of gauze, soon disappearing, leaves an aseptic covering directly in contact with the edges of the wound. Over this is applied a much larger dressing, consisting of from eight to sixteen layers of gauze wrung out of a solution of bichloride (1 : 4000), and over this numerous layers (eight to twenty) of gauze containing 3 or 4 per cent., by weight, of the biniodide of mercury. This salt, which is the latest antiseptic used by Lister and with which he is now experimenting, is comparatively insoluble, requiring 6000 parts of water, by weight, to dissolve it, although it is freely soluble in 200 parts of blood serum. The latter solution retains the most active antiseptic qualities. Its permanency and insolubility render it particularly valuable by lessening the probability of its being washed out of the dressings by the discharges. It is, however, extremely irritating, and not only the wound, but also the skin and surrounding parts must be carefully protected from contact with it by the interposition of the damp bichloride gauze already spoken of. It was interesting to see that, even in dressings which had remained *in situ* for a week or more, and had been thoroughly soaked for that time in the wound discharges, the portion of gauze from which the red color of the biniodide had been thus washed out would still promptly give the characteristic reaction with sulphide of ammonium, indicating the presence of the salt in sufficient quantity to preserve the antiseptic property of the dressing. Over this, without the interposition of any layer of mackintosh, is placed the antiseptic bandage or cloth, made of the same gauze, soaked and dried in a 1 : 4000 bichloride solution, which serves to retain the dressings in place.

Sir Joseph is not yet prepared to publish the details of this method, and, with characteristic caution, is waiting until he has employed it in a sufficient number of cases to discover all its possible defects, and to test thoroughly and completely its full antiseptic value. I was greatly interested in observing his attention to even the smallest details connected with this method. As he went through the ward, dressing all the important cases himself, each portion of the gauze, as it was removed, was carefully inspected by him, the discolored or bleached areas tested with sulphide of ammonium, and any unusual stain or hue carefully noted. On each occasion that I have been with him he has spent from two to four hours in his wards, but the results there obtained amply justify the time and care which he bestows upon his patients.

In an excision of the breast for carcinoma, the patient being a large, fleshy woman, and the tumor of unusual size, I saw the whole of the large operating wound, including that made in cleaning out the axilla, united throughout almost its entire length by first intention at the end of six days. I noted that, in dressing this case, no effort was made to make pressure upon the flap, and that the arm of the affected side was included in the dressings, the bulk of which were placed behind it, near the posterior aperture, for drainage. A broad band loosely applied, and a large piece of antiseptic gauze, also applied very loosely, completed the dressing, which at no time gave the patient the slightest pain or inconvenience. I have been accustomed, in dressing these cases, to apply the antiseptic roller with considerable firmness, with the idea of arresting any possible consecutive oozing and of promoting a rapid union of the flaps to the subjacent parts; but I shall certainly feel inclined in the future to apply looser dressings. Sir Joseph says, "When the patient is uncomfortable, you may be sure there is something wrong with the dressing."

There were in the wards two cases of ununited fracture of the patella, recently operated upon. In one case (a very large, powerful man), in which the lower fragment had been extremely small, Sir Joseph made passive motion for the first time at the end of the sixteenth day, explaining that he would have done so earlier if it had not been for the disproportion between the two fragments rendering the hold of the wire upon the lower one more insecure than usual. In the other case, which was of considerable standing before the operation, he had been unable to secure approximation of the fragments without incision of the quadriceps, which was much shortened. He elongated it by the method devised by his former pupil, Dr. Cameron, of Glasgow, which consists in first freeing the under surface of the muscle from the bone by means of a blunt instrument introduced beneath the upper fragment of the patella, and then incising obliquely the muscle itself at two places, the cuts beginning at the inner and outer edges, a short distance above the patella, and running parallel with each other nearly to the opposite edge, and extending through the entire thickness of the muscle. This permits of great elongation, without completely dissevering the continuity of the quadriceps. In this case, six days after the operation, on account of the restlessness and intractability of the patient, muscular spasm occurred, followed by extensive oozing from these cut surfaces. A large clot formed, producing considerable tension, necessitating the removal of the stitches, and causing at two points a slight separation of the edges of the wound. I watched this for ten days, and instead of the flush, the suppuration, the elevation of temperature and the alarming symptoms which would usually follow such a hemorrhage into and about a great joint, the patient and the limb both remained perfectly passive, with absolutely no sign of either local or constitutional irritation, while the clot itself gradually contracted and the knee resumed its normal outline. During all this time there was literally not one drop of pus and not a trace of offensive odor.

A severer test of Professor Lister's antiseptic methods could hardly be devised or imagined.

One of the most striking cases which I saw was an operation for the relief of the deformity caused by badly treated Pott's fracture. The fibula had been broken at the usual point, and there had also been a fracture through the base of the internal malleolus; the foot was so greatly everted that the limb was absolutely useless to the patient; this condition had persisted for more than a year. At the operation, the soft parts were turned forward down to the bone by an incision following the posterior border of the fibula and of the external malleolus; the fibula was divided at the point of fracture, the triangular space existing between the lower edge of the tibia and fibula, which was filled up with fibrous material of almost bony hardness, was cleared with the gouge, chisel and sharp spoon; the soft parts over the internal malleolus were then turned forward by a similar incision, and the mass of new bone, which was easily recognized, and which filled up the gap between the two fragments of the malleolus, was chiselled away. After this, the application of considerable force by means of pulleys brought the foot suddenly, but perfectly, into position. The subsequent course of the case was absolutely uncomplicated, and the patient, at the end of three weeks, already had considerable motion without pain in the ankle joint.

In another patient, an anterior luxation of the radius of one year's standing, rendering the elbow joint almost useless, was cut down upon and reduced. An excision of the elbow for strumous disease; an excision of the knee for gelatinous arthritis, with most extensive caries of the bones; a case of angular deformity of the femur, with great shortening, were all operated upon successfully. That is to say, at the end of from two to three weeks the limbs were in perfect position, the patients were entirely comfortable, and there had been neither suppuration, hemorrhage nor fever.

In a case of strumous abscess, and in another of empyema, Lister employed the injection of iodoform and glycerin (1 : 10) recommended by Billroth, and in another case of psoas abscess, containing twenty-five ounces of pus, he used the largest amount of the iodoform emulsion which he has ever employed—three ounces. In the case of the abscesses, the cavities were first washed out with a 1 : 100 carbolic solution, after which the iodoform was injected and retained, antiseptic gauze being fastened by collodion over the trocar puncture. The empyema occupied the entire right chest of a feeble infant, who had been previously aspirated; the pus was thick and curdy, and would not run through the trocar until a watery solution of bichloride (1 : 4000) had been forcibly injected; after that a large quantity was evacuated. The opening through the skin was made with a knife, and was rendered valvular by first displacing the skin from over the site of intended tapping. A half ounce of the iodoform mixture was used, the canula was surrounded with wet gauze during its withdrawal, the puncture was closed with sal alembroth gauze held down by collodion. The child was inverted and rolled from side to side for the purpose of diffusing the iodoform thoroughly through the abscess cavity.

In a case of extremely large ranula, which had been operated upon outside of the hospital by laying open the sac, the latter was carefully and completely dissected out by Lister, and proved to be dermoid in its origin. He remarked that in such cases, in which full antiseptic treatment is impossible, the wound being exposed to contact with the septic saliva, chloride of zinc (forty grains to the ounce) and iodoform are of the greatest advantage in preventing putrefaction for the first two or three days, a most important period, both because the freshly wounded tissues are then most susceptible to putrefactive irritation, and because they are at that time most actively absorbent.

I saw many other cases with Sir Joseph, but for want of time must reserve them for another letter. In his personal and home life he is as attractive as in his hospital wards. Among the many interesting anecdotes which I had the pleasure of hearing at his dinner table were two about his father-in-law, the great surgeon, Mr. Syme, which seem worthy of being recorded in a letter upon surgical topics. At the time Sir Joseph was making his earliest experiments in relation to the germ theory of putrefaction, he asked Mr. Syme, then in his sixty-fifth year, to observe the result of one of them, the now well-known method of preventing decomposition of animal fluids by the simple plan of allowing the atmosphere to gain access to them (after they have been boiled) through a glass tube which has been drawn out in curves. Of course, we all understand now that the preservation of the fluid under these circumstances depends upon the deposit, in the lower portion of these curves, of the atmospheric dust and germs as the air enters. Mr. Syme took in the whole importance of the great natural law thus illustrated at a glance, and said that, although he would be deeply interested in further experiments, he needed nothing more to convince him. I told Sir Joseph that we had an equally conspicuous example, in America, of willingness to learn and practise new methods after the age of sixty, and he knew at once to whom I referred, and cordially agreed with me.

The other anecdote to which I referred was elicited by my remark that the advances of surgery in the past twenty years made many of the younger men of the present day feel as though there were but little left for them to do. Sir Joseph told me that in his very earliest days in Edinburgh, when he was still uncertain whether to remain there or to begin his work elsewhere, he consulted Mr. Syme. The latter told him that he would probably do well to stay there, but remarked, in almost the same words I have used above, that it really seemed as though there were not much left to do in the way of advancing surgical science, little thinking at the time that the young man he was talking to, his future son-in-law, would almost alone and unaided effect the greatest revolution in surgery, and bring about the greatest step in advance, which has been made since Harvey discovered the circulation of the blood. Lady Lister, as might be expected, takes an interest in all surgical topics, and especially in those connected with antiseptic work, which is only second to that of Sir Joseph himself.

The kindness and courtesy with which all the London surgeons treat their professional brethren from America is already well known, but I desire to add my testimony to the same effect, and to record the gratification with which I found that men like Lister and Wells (to say nothing of their younger, but almost equally busy confrères) were willing to give up so much of their valuable time to strangers, whose only claim upon them lies in

their desire to learn whatever may benefit the sick or injured under their care. J. WILLIAM WHITE.

LONDON, July 27, 1888

NEWS ITEMS.

The Congress of American Physicians and Surgeons, Washington, September 18–20, 1888.

The American Dermatological Association announces the following programme:

Address, by the President, I. E. Atkinson, M.D.

The Electrolytic Decomposition of Organic Tissues, by G. H. Rohé, M.D.

The Value of Salicylic Acid in Dermatology, by C. Heitzmann, M.D.

Hereditary Dermatoses, by J. C. White, M.D.

A Report of Four Cases of Dermatitis Herpetiformis, by J. E. Graham, M.D.

Dermatitis Herpetiformis, with Notes of Three Cases, by H. W. Stelwagon, M.D.

Personal Observations on Skin Diseases in the Negro, by R. B. Morison, M.D.

Note of a case of Filaria Medinensis, by A. Van Harlingen, M.D.

So-called Acne Anthracoide Iodopotassique, by R. W. Taylor, M.D.

Note Relative to the Vegetative Lesions induced by Ingestion of some of the Iodine Compounds, by J. N. Hyde, M.D.

Notes on some Unusual Cases of Skin Disease, by W. A. Hardaway, M.D.

A Contribution to the Clinical History of Alopecia Areata, by A. Van Harlingen, M.D.

The Non-identity of Lichen Planus and Lichen Ruber, by G. H. Fox, M.D.

The Question of Relationship between Lichen Ruber (Hebra) and Lichen Planus (Wilson), by A. R. Robinson, M.D.

Multiple Pigmentary Sarcoma, by E. B. Bronson, M.D.

Dermatitis Plantaris and Palmaris, by L. Duncan Bulkley, M.D.

Raynaud's Disease and Symmetrical Gangrene in late Syphilis, by R. W. Taylor, M.D.

The Relations of Framboesia to Syphilis and Tuberculosis of the Skin, with Report of a Case, by P. A. Morrow, M.D.

Kraurosis of the Vulva (Breisky), by C. Heitzmann, M.D.

Molluscum Contagiosum, a Clinical Report, by H. W. Stelwagon, M.D.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 14 TO AUGUST 20, 1888.

SUTHERLAND, CHARLES, *Colonel and Medical Director*.—Directed to inspect the Medical Department of Forts Brady, Mackinac and Wayne, Michigan; Forts Porter, Niagara and Ontario, New York; Madison Barracks and Plattsburg Barracks, New York; Fort Preble, Me; Fort Warren, Mass; Fort Adams, R. I., and Fort Trumbull, Conn.—Par. 7, *S. O. 168, Division of the Atlantic*, August 16, 1888.

JANEWAY, JOHN H., *Major and Surgeon* (U. S. Army).—Granted leave of absence for one month, on surgeon's certificate of disability.—Par. 2, *Special Orders No. 41, Division of the Pacific*, August 8, 1888.

BROWN, HARVEY E., *Major and Surgeon* (U. S. Army).—Upon being relieved by Captain and Assistant Surgeon William C. Gorgas, to proceed to his proper station, Jackson Barracks, New Orleans, La, reporting in person to the commanding officer of that post for duty.—Par. 8, *S. O. 187, A. G. O.*, August 14, 1888.

TORNEY, GEORGE H, *Captain and Assistant Surgeon* (U. S. Army).—To proceed to St. Augustine, Fla., via Palatka, accompanying the U. S. Troops thereat to Huntsville, Ala, as Medical Officer, and thereafter return to his proper station (Fort Monroe, Va.).—Par. 4, *S. O. 165, Division of the Atlantic*, August 13, 1888.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon* (U. S. Army).—Leave of absence granted in S. O. 177, A. G. O., August 1, 1888, revoked, and ordered to proceed to Camp Monte Sano, Huntsville, Alabama, and report in person to the commanding officer there for duty, relieving Major and Surgeon Harvey E. Brown.—Par. 8, *S. O. 187, A. G. O.*, August 14, 1888.

WOOD, LEONARD, *Assistant Surgeon* (U. S. Army).—To proceed from Fort McDowell to San Carlos, Arizona Territory, and carry out the instructions of the Department Commander. Upon completion of that duty, to return to his proper station.—*S. O. 89, Department of Arizona*, August 1, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING AUGUST 18, 1888.

FEREBER, N. M., *Surgeon*.—Detached from the "Franklin," and ordered to the Marine Hospital, Norfolk, Va.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING AUGUST 13, 1888.

PURVIANCE, GEORGE, *Surgeon*.—Granted leave of absence for thirty days, August 13, 1888.

SAWTELLE, H. W., *Surgeon*.—Detailed as a member of the Board to select a site for a quarantine station at San Diego, Cal., August 6, 1888.

GOLDSBOROUGH, C. G., *Surgeon*.—Granted leave of absence for thirty days, August 10, 1888.

GUITÉRAS, JOHN, *Passed Assistant Surgeon*.—To proceed to Sanford and Jacksonville, Fla, and Way Cross and Dupont, Ga., on special duty, August 1, 6, 9 and 10, 1888.

BANKS, C. E., *Passed Assistant Surgeon*.—Granted leave of absence for four days, August 6 to 9, 1888.

PECKHAM, C. T., *Passed Assistant Surgeon*.—Granted leave of absence for thirty days, August 10, 1888.

URQUHART, F. M., *Passed Assistant Surgeon*.—To proceed to Way Cross Ga., on special duty, August 9, 1888.

GLENNAR, A. H., *Passed Assistant Surgeon*.—Detailed as a member of the Board to seelect a site for a quarantine station at Port Townsend, Washington Territory, August 6, 1888.

WASDIN, EUGENE, *Passed Assistant Surgeon*.—Detailed as a member of the Board to select a site for a quarantine station at Key West, Fla, August 6, 1888.

WILLIAMS, L. L., *Passed Assistant Surgeon*.—Granted leave of absence for fifteen days, on account of sickness, August 10, 1888.

STONER, J. B., *Assistant Surgeon*.—To proceed to Norfolk, Va., for temporary duty, August 9, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, SEPTEMBER 1, 1888. NO. 9.

ORIGINAL LECTURES.

ALBUMINURIC RETINITIS.

One of the Course of Evening Lectures delivered at the Philadelphia Polyclinic.

BY EDWARD JACKSON, A.M., M.D.,
PROFESSOR OF DISEASES OF THE EYE.

THIS subject, besides its very general and important practical interest, is especially attractive, because it well illustrates the value of the ophthalmoscope as an instrument of diagnosis in general or constitutional diseases. The ophthalmoscopic changes that mark this affection are striking and, in the majority of cases, can scarcely be mistaken for anything else.

PATCHES OF FATTY DEGENERATION.

The most constant and characteristic appearance presented is that of white spots, caused by fatty degeneration of portions of the nerve-fibre and inner molecular layers of the retina and of masses of exudation occurring in these layers. You know that the normal retina is transparent, and that with the ophthalmoscope we see through it back to the pigment layer and the capillary layer of the choroid, which give the red color of the fundus-reflex, the only visible structures in front of these being the retinal vessels. When, however, the nerve-fibre and adjacent layers of the retina (they being the inner layers of that membrane, the layers next the vitreous and nearest the observer) become the seat of opaque exudation or undergo the change that replaces their proper tissue by emulsified fat, nothing beyond them can be seen, and the general red of the eye-ground is interrupted by a white spot. These white spots are at first usually small, discrete and most numerous in the region of the macula lutea and its immediate neighborhood. As the case progresses, they become larger and more numerous; and often in the region of the macula they run together, forming large masses, which have a somewhat stellate outline.

The location of the spots, or of the opacity causing them, may be ascertained by the partial concealment of the retinal vessels caused by them. These vessels lie for the most part in the layers involved, sometimes absolutely superficial, sometimes buried more or less deeply in their substance. When one of them passes across an area of retina thus altered, if on the surface, it will remain visible, and be all the more noticeable for its brilliant white background; but if it dips below the surface in such an area of opacity, it will at once be lost to sight. The only other condition concealing parts of the retinal vessels, and presenting an appearance at all similar, is that of persistent nerve-sheath. Here the opacity is in the same layer, and consists of a material physically very similar; but the distribution of the spots is entirely different. In this congenital anomaly they are of comparatively large area, never more than three or four in number, often but a single one, and they almost invariably begin at the margin of the optic disk and stretch off from it in the direction or directions of the distribution of the larger masses of nerve-fibres, ending in a "feathered" or not sharply defined edge; while, on the other hand, the lesions we are now considering involve small spots, are most numerous at the macula, although they may be scattered over the whole of the visible fundus, and have edges either sharply defined or clouded by retinal œdema, which gives an appearance quite different from that of the "feathered" edge.

These white spots are to be distinguished from those caused by lesions of the choroid by the entire absence of alterations in the pigment layer in the surrounding parts. If, in this affection, alterations in the distribution of pigment do occur, they lie beneath the more superficial opacity, and are entirely concealed by it.

There is, however, one condition of the fundus oculi which even the experienced observer will have difficulty in distinguishing from the scattered small white spots of commencing or mild albuminuric disease.

In this condition, which is perhaps (like albuminuric lesions) more frequent after middle life, there are very many small white spots, generally most numerous in the region of the macula or near the disk, but with a few scattered in other parts of the fundus. These spots are always small, seem to be due to choroidal change, and are of a rather yellowish-white. I am not certain whether there is any impairment of vision directly dependent on them or intimately associated with their occurrence.

They could not be mistaken for the appearances of a violent or advanced case of albuminuric disease; but it is sometimes very difficult to make sure that they are not the beginnings of such a trouble.

Curiously enough, a patient presented herself at the clinic to-day, with white spots in the fundus, the significance of which I could not, after careful ophthalmoscopic examination, certainly determine. In this case the spots are largest and most numerous some distance above and below the disk and macula, instead of in their immediate vicinity; and while some of them have the shining white color of the retinal lesion, others are more of a yellowish-white appearance, such as the choroidal spot presents. None of them is crossed by vessels large enough to be visible, and there are no hemorrhages or spots of pigment disturbance or other appearances to aid in deciding the question. We shall have to keep this woman under observation, and by further developments within the eye, or the study of other organs, will be able to arrive at a conclusion. (She was subsequently found to be suffering from albuminuria.)

The white spots of retinal degeneration are not confined entirely to albuminuric disease, but they are found in leukemic retinitis also; and in some cases of violent

neuro-retinitis connected with coarse disease of the brain; but in these other conditions the white areas are rarely, if ever, the most notable ophthalmoscopic symptoms, while in albuminuric disease they are usually the most prominent and, not rarely, the only local evidence of disease, and on finding them in any given case, the first thought would be of renal-vascular disease. When these spots once appear they rarely disappear or even diminish. There is very little tendency to regeneration of the tissue, except when the lesion occurs during the albuminuria of pregnancy.

HEMORRHAGES.

Next in importance to the white spots are the extravasations of blood into the substance of the retina. Unlike the former, these are not lasting, but in a few days, or a few weeks, any particular hemorrhage will be absorbed and will leave either no visible trace, or simply a white spot of fatty degeneration. It is not to be supposed, however, that all the white spots, or even the most of them, result from hemorrhages. The extravasations vary in size, from areas larger than the optic disk to the smallest speck visible by the direct ophthalmoscopic examination. In searching for them it would not do to rely on the inspection of the inverted image. Cases of unmistakable albuminuric retinitis are not rare that might, by the indirect method, be readily overlooked. Hemorrhages are most numerous toward the posterior pole of the eye, in somewhat the same proportion as that region is more richly supplied with bloodvessels.

The larger hemorrhages almost always lie partly in the nerve-fibre layer, in which the extravasated blood tends to make its way between the bundles of nerve-fibres, causing the appearance of striæ, alternately white and dark red, extending in the direction of the fibres. Such hemorrhages are often spoken of as "flame-shaped," and by their appearance and distribution, in connection with the white spots, they form a picture which reminds one of the common representation of an explosion, a radiating cloud in which each object is fringed with the same radiating lines, to show that it is flying off from a centre. The smaller hemorrhages often do not present any such striated appearances, being confined to the granular layers of the retina, in which are distributed the minute vessels from which they are poured out. The color of the extravasated blood is a dark crimson shortly after it has been poured out, becoming still darker as time goes on; but never entirely black, so that it would be mistaken for a deposit of pigment, or an opacity in the vitreous humor.

The hemorrhages are in no way characteristic of albuminuric retinitis, either in the fact of their occurrence or from any peculiarity of appearance or behavior. Hemorrhages, quite similar, are found in cases of severe retinitis or neuro-retinitis from other causes. Nor are they always present in albuminuric retinitis. Even when they have been present, they may have all disappeared at the time or times that the eye is examined. Their presence, or abundance, rather indicates that there is, or has recently been, an exacerbation of the inflammatory action; or that the local disease, at least, is rapidly progressive. Still, while the entire absence of hemorrhage would not exclude the presence of albuminuria and the conditions of which it is a symptom, in a case of retinal disease, the discovery of even a single patch of extravasated blood should arouse our suspicion and induce a careful search for evidence of such a basis for the local trouble.

LESIONS OF THE VESSELS.

The simple failure of the vessels properly to retain their contents, in a situation so well protected from external injury as the retina, and where they have the external support of the intraocular pressure, must be taken as evidence of serious disease of their walls. Actual rupture, with the pouring out of contents, is commonly confined to vessels too small to be recognized with the ophthalmoscope; but localized dilatation of the larger vessels occurs. True aneurism of what can, from its size and connections, be certainly identified as a retinal artery, is probably quite rare. I have seen it in but one case; but a marked varicose enlargement of the retinal veins is common. This is often so great, as compared with the calibre of the undilated vessel, and the undilated portions may be so completely buried in the swollen retina, that it is very difficult to decide whether the blood to which a certain dark red patch is due, is contained in such a dilatation, or has escaped into the retinal tissue.

An extremely interesting condition of the vessels is that in which their walls have become, to a greater or less extent, opaque and white. This condition arises in the course of various affections involving the retina, but in none more frequently than in albuminuric disease. It may be brought about by an embolism or a thrombosis, as in a case I saw in Dr. Harlan's service at the Pennsylvania Hospital, two years ago, in which every part of every vessel, except one minute twig, had become a white band; but in other cases the change is confined to a limited portion of the vessel wall, and the passage of blood through it is not perceptibly interfered with. Here is a sketch (water-color sketches of the fundus oculi, giving the various appearances of albuminuric retinitis, and those that might be mistaken for it, were used to illustrate the subject) of the fundus of the eye of a patient who was in attendance here a few months ago, in which the inferior nasal branch of the retinal artery has walls of a brilliant opaque white for some distance from the margin of the disk, while beyond, the vessel presents an absolutely normal appearance. More frequent, still, is the condition in which the perivascular sheaths of the vessels become visible as a pair of, more or less pronounced, white lines running parallel to the vessel, close to it and sometimes widening out so as partially to conceal it.

FORMS AND PROGRESS.

It is convenient to speak of two forms of albuminuric retinitis, the degenerative and the inflammatory, although these are blended in the great majority of cases, and often one and then the other predominates at different periods in the progress of the same case. In the degenerative form the white patches, however numerous, are apt to be small and separated by spaces of apparently normal fundus; and if hemorrhages are present, they are similarly distributed. When this is the character of the case, and there is no sudden involvement of any large part of the macula, the impairment of vision is quite gradual, and the patient is likely to regard it as due to some senile change, requiring, perhaps, a special adjustment of glasses for its correction. The inflammatory form may be taken from the outset, but usually it is

assumed after some of the degenerative changes have occurred. And its appearance is often connected with some especial strain on the eyes, or with an acute exacerbation of the kidney trouble. The symptoms may vary from those of rapidly progressive degeneration, with some hyperemia, to those of the most violent neuro-retinitis, indistinguishable from neuro-retinitis arising from other causes. In so far as the case approaches the latter type, it exhibits œdematous swelling of the retina most marked in the region of the macula and disk. This swelling often buries and partially obscures the retinal vessels and patches of degeneration, giving the whole fundus a hazy and often dirty appearance.

TREATMENT AND SIGNIFICANCE.

The course of the retinal affection depends largely on the course of the general disease which causes it. Degenerative cases go more or less steadily, and more or less rapidly, from bad to worse; but useful vision is mostly retained until the close of life. In so far as the retinal lesion is inflammatory, it is liable to be aggravated by anything that causes an especial determination of blood to the organ, as use of the eyes, strain of inadequate accommodation or uncorrected errors of refraction or exposure to excessively bright light; and by greater care, in these directions, improvement in the local condition may be secured. When the inflammation, especially of the nerve entrance, has been severe, it is liable to be followed by atrophy, which causes partial or almost complete blindness.

The significance of albuminuric retinitis, as an evidence of the general condition of the system, however, is quite as important as its usual influence in impairing the function of the part involved. Its appearance may be regarded as certain evidence that the degenerative changes in the walls of the bloodvessels that occur throughout the system in connection with the chronically contracted or granular kidney are far advanced; and that, except in the albuminuria of pregnancy or scarlatina, the fatal termination is not likely to be very long deferred; not that albuminuric retinitis is strictly confined to this form of kidney disease, but when it occurs in connection with the large white or the lardaceous kidney, it will be found that the vascular condition, local and general, is markedly that which is so closely connected with the slowly contracting kidney. In so far as it is possible for any one symptom to be regarded as pathognomonic, we may so regard this one of retinitis albuminurica. While albumin may sometimes be found in the urine, sometimes be absent, the white patches in the retina, once formed, remain always; and anything like the typical appearances of this affection, in the eye of a person not suffering from Bright's disease, is certainly more rare than albuminuria in perfect health. Of those who come to us with this form of retinal disease, about 60 per cent. die within the first year after its recognition; at the end of two years, 85 or 90 per cent. are dead; and scarcely one in fifty lives to the end of five years. One observer reports that of over one hundred cases of which he had followed the history, all had died within two years from the time they were first seen; but, although the retinal lesion is certainly not incident to an early stage of the morbid process, it is very often the first symptom to arouse a suspicion of the real basis of an indefinite, though often prolonged, impairment of the general health.

ALBUMINURIC RETINITIS DURING PREGNANCY.

Occurring in this connection the disease differs as to its prognosis and significance from the account that has just been given; but this difference may be seen to depend directly on the temporary nature of the cause of the albuminuria; and the great capacity for the regeneration of tissue exhibited upon the termination of pregnancy. So long as pregnancy continues, the prognosis, both as to vision and as to life, is much the same as it is in the same conditions arising independently of pregnancy; the retinal process tending, if anything, more toward the inflammatory type; with an especial liability to subsequent partial or complete loss of sight by atrophy of the optic nerve; but when the pregnancy ends, either at term or prematurely, the whole aspect of the case changes. Not only is it probable that the kidneys will resume the normal performance of their functions and the danger to life be averted, but the retinal œdema will clear up, the white patches will begin to fade away and perhaps disappear entirely; and the vision, though very greatly impaired, will improve, at first rapidly, then more slowly, and after a while will be found, perhaps, up to the full normal standard.

On account of the complete reversal of the prognosis as to vision wrought by the expulsion of the product of conception, the question has within a few years been raised and considerably discussed: Are we in this affection justified in inducing premature delivery for the prevention of what is likely to be permanent blindness? and almost every one who has written on it has answered it in the affirmative; but we must remember that most of those who suffer from albuminuric retinitis die before the local disease has time to destroy useful vision; and although as it occurs in pregnancy, the danger may be relatively somewhat greater for sight, still the relation between the prognosis as to vision and the prognosis as to life is intimate. What affects the one will affect the other; and in the great majority of cases, the necessity of resorting to extreme measures will rest on the peril to life, which must be regarded as imminent whenever severe albuminuric retinitis exists. If a case should arise in which blindness was threatened without serious risk to life, the decision as to the induction of premature labor or abortion, would probably have to be made on grounds peculiar to the individual case.

ORIGINAL ARTICLES.

FOUR SUCCESSFUL CASES OF LITHOLAPAXY IN BOYS.

BY DUDLEY P. ALLEN, M.D.,

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FOR the successful performance of litholapaxy upon boys, and its introduction as a safe operation, we are indebted to British surgeons in India. One year ago, the operation had been rarely performed, if at all, in Europe. Instruments were difficult to get, and those manufactured by the celebrated firm of Weiss & Son, of London, had gone chiefly to India.

In January of this year (1888), lithotrites suitable for crushing vesical calculi in children were ex-

hibited in the Surgical Section of the Academy of Medicine in New York, by Dr. R. F. Weir, as a curiosity. Since then the operation cannot have become a very common one in the United States, the report of several successful cases, and remarks upon them, may be of interest. Three operations were upon boys who had not yet reached puberty.

The details of the operations are, in brief, as follows:

CASE I.—James M., æt. thirteen and a half years. Has been twice cut for stone. In March, 1884, one stone was removed. In April, 1886, two stones were removed. About one year after the second operation, began to suffer again with symptoms of stone. The suffering was so intense, at times, that the screams of the boy could be heard through the neighborhood.

Feb. 27, 1888. Performed litholapaxy, removing a phosphatic stone. The stone, being soft, was crushed with ease. Weight 80 grains. Largest diameter, as measured by lithotrite, one inch. Dr. A. J. Cook, who kindly invited me to perform the operation, and who cared for the patient subsequently, reported the next day that the temperature was 98½°. Slight local tenderness. Patient passed water without difficulty, but when desire occurred must micturate at once.

Two days after the operation, I found the patient eating a hearty supper and feeling well. Up to the present time (August, 1888), there have been no recurring symptoms of stone and the urine is normal.

CASE II.—Paul S., æt. fifteen years. Not yet reached puberty. For three years, patient has micturated frequently, and of late suffered considerable pain.

May 30. Performed litholapaxy. Stone was of uric acid and very hard. Its largest diameter, as measured by the lithotrite, was one inch. Weight 32 grains.

The specific gravity of the fragments being high, the washing was slow and laborious.

Operation was performed without any difficulty. My friend, Dr. Sihler, who sent me and cared for the case, reports that the day following the operation a few grains of fine sand were passed; that the patient suffered very slightly from the operation and that now he is perfectly well.

CASE III.—Albert S., æt. thirteen years; has suffered from pain in the region of the bladder for about five years.

Aug. 1. Performed litholapaxy. Largest diameter of stone, as measured by lithrotrite, was one and one-quarter inches. Composition urates and phosphates. Weight of stone 145 grains. A considerable stricture of the urethra was found at the pubic arch, and great difficulty was encountered in passing instruments and considerable force was required for their insertion.

Aside from this, the operation was performed without accident. One hour after the operation, the boy was begging for his dinner. At no time did he require any anodyne, and the next day felt in excellent condition. The first time he urinated a very little sand was passed.

REMARKS.—The interest in the above operations is dependent on the fact that the instruments employed were of the calibre of No. 18 French. The difficulty of the operation depends upon the fact that the fragments of stone must be evacuated through so small a tube. It will be remembered that litholapaxy was first considered practical after Otis had demonstrated that the normal male urethra would admit a tube of a size of No. 30 and No. 32 French and even larger. At this time, the operation was considered inapplicable to boys who had not reached a development sufficient to admit large instruments.

When lithotrites are reduced to the size of No. 18 French, it is evident that more time will be required to crush with them a stone of a given size than would be the case with a larger lithotrite. There is another difficulty: if a lithotrite be constructed with flat blades, as is common in most lithotrites, impaction becomes possible. Should this occur the calibre of the lithotrite would be increased so that on withdrawal the urethra might be lacerated, since it is very tender in children. On this account it has been thought necessary to construct the crushing portion of the female blade like a loop, so that the male blade may pass entirely through it, coming out flush with the heel of the lithotrite. Though this form of blade is no hinderance in crushing the first part of the stone, while the fragments are still large, it gives rise to very great delay in crushing the small fragments remaining toward the close of an operation. The reason for this is that these fragments, though too large to pass through the evacuating tube, are still small enough to be pushed through the fenestra in the female blade.

To overcome this difficulty, we have found it a great assistance to crush the fragments remaining at the close of each operation with a lithotrite having a flat, unfenestrated female blade. We have not used it long without withdrawing it, and in each case have succeeded in screwing the male blade well home, so that no difficulty has been encountered in the withdrawal of the instrument. The lithotrite with fenestrated blade which we have used for the main part of the crushing was made for us by Codman & Shurtleff, of Boston, under the skilled supervision of Dr. Arthur Cabot, the associate of Dr. Henry J. Bigelow, and does its work admirably.

The flat-bladed instrument used at the close of each operation was made for us by Weiss, of London, after a model of Sir Henry Thompson's. Weiss &

Son are now manufacturing for boys a lithotrite with a shorter shank, which is considered more convenient.

In comparing litholapaxy with lithotomy the questions which arise with reference to its advantages or disadvantages are: (1) Is it safe? and, (2) Are its results as good?

Of the safety of the operation there can, I think, be little doubt, provided it is in skilful hands. Litholapaxy undertaken by an operator who is not conversant with its details and dangers, especially if he is not skilled in the manipulations of urethral and bladder instruments, must in all cases be a dangerous operation. If a surgeon possesses the skill requisite for the performance of the operation in adults, there is no reason why he should not succeed in children. To be sure, the instruments are small and the mucous membrane tender.

In the three operations just recorded, the water was scarcely more than tinged with blood. If there be danger in boys from the tenderness of the mucous membrane, this is more than counterbalanced by the fact that the kidneys are not often diseased, nor is the bladder so frequently rendered abnormal by the presence of sulci and projections. One very decided advantage over cutting is that the recovery is much more rapid, being complete, as a rule, in a few days, whereas the care of the patient amounts to nothing when compared with the foul and revolting bed of a patient on whom lithotomy has been performed, with the persistent eczema which often results from a long-continued discharge.

Whether the cure is as permanent as that resulting from lithotomy cannot be so positively answered. In one of our cases, lithotomy had been twice performed before we performed litholapaxy. Now, after almost six months, the urine is perfectly normal. We certainly can have no worse success than that which followed the cutting operation. Another case has recently come under our observation of the return of a stone in a boy after lithotomy. There are many such cases.

If the operation be desirable in adults, there is greater reason why it should be successful in boys. If it must be repeated, three or four litholapaxies cause far less pain and loss of time than one lithotomy; besides, the size of the urethra is constantly increasing with increasing age, rendering subsequent operations more easy, provided they should be required. It would not seem probable that stones would be reformed more frequently in boys than in adults, since their urinary tracts are certainly less liable to be in a seriously diseased condition such as renders them liable to the formation of calculi. What the tendency to the reformation of calculi may be can only be determined, positively, by a record of many cases.

In a word, then, we consider the operation of litholapaxy in boys a safe one in skilled hands. The operation is less severe; the care of the patient is vastly less; and the recovery is much quicker than in the operation of lithotomy. We believe the cure to be as permanent.

CASE IV.—This has nothing in common with the preceding cases, but is of interest in itself.

James B., æt. nineteen, some eight months since, ran a piece of chewing-gum into his urethra. This got beyond his reach and worked its way into his bladder. A calculus formed about this as a nucleus, and on January 19, 1888, we performed on the patient litholapaxy. For this we used the instruments suited to adults. The difficulty of the operation consisted in the fact that the chewing-gum constantly impacted the blades of the lithotrite, so that it was necessary to remove it frequently. All the fragments were, however, successfully removed, weighing 180 grains. The greatest diameter, as measured by the lithotrite, was 1¼ inches.

We visited the patient the next morning and found him sitting up and about his house. He said that as soon as he became conscious, after the operation, he got up and passed his urine without difficulty and with little pain.

Through Dr. A. J. Cook, who kindly called us to operate upon the case, we learn that the patient has remained well since the operation.

SOME POINTS IN THE ETIOLOGY AND PATHOLOGY OF SUMMER COMPLAINT.[1]

BY B. K. RACHFORD, M.D.,

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1st. THE chief, if not the only direct, causes of summer complaint are abnormal intestinal fermentations of food stuffs.[2] The fermentations of this class are always caused by organized ferments, viz., bacteria.

2d. Summer complaint is a general term used to describe not a single disease, but quite a number of diseases, of which our present knowledge does not permit of scientific etiological classification.

Subsequent investigations will probably show that there are quite a number of pathogenic[3] bacteria, each capable of producing certain definite changes in food stuffs which will bring about characteristic symptoms.

3d. Summer complaint being of bacterial origin is, necessarily, an infectious disease. The infectious nature of this disease is well established by clinical

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[1] Read before the Cincinnati Academy of Medicine, June 26, 1888.

[2] See Dr. Christopher's paper, read before the Cincinnati Academy of Medicine, February 6, 1888, and published in THE MEDICAL NEWS of March 3d.

[3] The term pathogenic is here used to mean *a disease-producer*, it matters not whether it acts directly or indirectly, or from without or within the body. This is not the accepted use of this term in bacteriology, but it should be.

testimony, and that all diseases embraced under this term "summer complaint" are not alike infectious is also clearly pointed out by clinical observation. There is, indeed, a very great difference in this regard. In the majority of instances, this element is so obscure that clinicians frequently overlook it; but in the small minority of instances, a variety of this disease prevails, which is so infectious that the most casual observer is struck by this characteristic.

This great difference in the degree of infectiousness of various types of this disease indicates that they are altogether different diseases, each having a germ peculiar to itself, and that there is a great difference in the facility with which these germs pass from host to host, for upon this must depend the degree of infectiousness of any parasitic disease. We are not at present able to trace the parasites from host to host, and cannot, therefore, speak with certainty upon the special characteristics of the germs which determine the infectiousness of these diseases; but there are certain facts and observations which throw some light upon this question.

A. These germs escape from the body in the discharges from the alimentary canal.

B. The germs of abnormal intestinal fermentation find their way into the intestinal tract chiefly, if not exclusively, through the food and drink of the child.

C. The germs of normal intestinal fermentation[1] readily find their way into the intestinal canal in other ways than through the food and drink. This is evidenced by the fact that the intestinal tract of the young infant fed exclusively on mother's milk—a sterile fluid—is filled with bacteria.

Now, if the pathogenic bacteria could live under the same conditions as the normal intestinal bacteria, they would, like them, have a universal distribution; and if the pathogenic varieties could as readily find their way into the intestinal tract of the infant as the normal varieties can, the human race would soon become extinct, the victim of intestinal disorders.

D. The germs of normal intestinal fermentation, since they are *always* present in the intestinal tract from the first to the last moment of life, must be universally distributed and have ready access to the intestinal tract. They can probably resist the cold of winter, can live in a state of desiccation and resist other destroying agencies to which known pathogenic bacteria succumb. They are found not only in the food and drink of the child, but on everything with which the child comes in contact. Nature has provided that these bacteria, so necessary to infantile digestion, shall have no difficulty in finding their way into the intestinal canal. If it were possible to sterilize the intestinal tract, the next hour would find it filled with normal intestinal bacteria.

If, then, in our attempts to rid the intestinal canal of the infant of pathogenic bacteria, by giving antiseptic cathartics, such as calomel, we should also drive out or hinder the growth of the normal varieties, it would not interfere, to any appreciable extent, with digestion, since the calomel would soon disappear from the canal and the normal intestinal bacteria would again fill the intestinal tract. The pathogenic varieties, by reason of their feebler powers of resistance, would be much more readily destroyed and their subsequent entrance could be prevented by appropriate measures. These theoretical conclusions are, I think, amply sustained by clinical experience. For these reasons I think that Baginsky's[1] objection to the use of calomel is not a valid one.

E. The germs of abnormal intestinal fermentations probably cannot live in a state of desiccation, and must, therefore, like the typhoid bacillus, after leaving the intestine find a suitable nourishing material in which to live as a saprophyte till they accidentally find their way into the food and drink of the baby.

This accords with their limited distribution and comparative difficulty in finding an entrance into the intestinal canal, and explains why the abnormal varieties are more abundant in cities than in the country, since the conditions for the saprophytic existence of these organisms are rare in the country and everywhere present in the city. It also explains why the abnormal intestinal bacteria are not present to any appreciable extent except in warm weather, since the saprophytic existence of these organisms would be destroyed by the cold.

From these observations it follows that a cool climate, sterile food, sunlight, fresh air and cleanliness are the great prophylactic measures against this disease.

It is quite evident that sterile food has its great field of usefulness in the prevention rather than in the treatment of these diseases; for if we have an abnormal fermentation going on in the intestinal tract, producing disease, it matters not as to the continuance or activity of that fermentation, whether it be fed on sterile or non-sterile milk; either will feed the fermentation and continue the disease. I do not mean by this that sterilized milk is of no value as a food in summer complaint; it is of value in chronic cases and is indicated in all cases in which mother's milk would be indicated—that is, when milk does not aggravate the disease by feeding the fermentation which is the cause of the disease. If milk be given at all, sterile milk is much to be preferred, because of the possibility that other bacteria,

[1] The term fermentation is here used in a very broad sense to mean the changes, either directly or indirectly, produced by organized ferments by their growth or presence in any nourishing material.

[1] See Dr. Baginsky's paper published in Deutsche medicinische Wochenschrift, 1888, pp 391 and 414.

more dangerous in their fermentation products, may be introduced and a more violent disease set up as a complication of the existing disease.

With these remarks on the etiology of summer complaint, let us pass to the consideration of a question concerning its pathology, viz.: How do bacteria act in producing this disease? In a discussion which was published in THE MEDICAL NEWS of March 10, 1888, I said, in answer to this question,

"Bacteria may act in three ways in the production of summer complaint.

"1st. The disease may be caused by ptomaines."

"2d. The disease may be caused by any of the many indigestible and irritating materials formed in the process of fermentation and putrefaction."

"3d. The disease may be caused by anything that interferes with the growth and development of the bacteria so necessary to infant digestion."

I am impressed at this time more fully than ever with the truth and value of these propositions, and desire to dilate on them, that their scope and application may be more fully understood.

In the consideration of these questions we will reverse the order of these propositions.

In the first place, bacteria may cause summer complaint by interfering with the growth and function of those bacteria normally present in the intestinal tract and so necessary to infant digestion.

It is the prevailing opinion among medical men at the present time that bacteria play a very important *rôle* in the digestive process, especially in infancy. They possibly act not only by producing soluble ferments, which change starch to sugar, albumens to peptones, fats to fatty acids and glycerin, but also as organized ferments, producing the normal fermentations of food stuffs in the intestinal canal.

In all probability, the younger the child the more dependent it is on bacteria for the proper execution of the digestive function.

It is a fact of common observation that different species of bacteria growing in the same culture material exert an unfavorable influence on each other; in other words, an antagonism exists, which results in the survival of the fittest.

With these facts in mind, it is easy to understand how bacteria which do not produce poisonous alkaloids or materials specially irritating to the intestinal mucous membrane may yet cause digestive derangement by killing out the bacteria of normal intestinal fermentation, and in that manner stopping the digestive process and causing the otherwise easily digested food now to act in its undigested condition as an intestinal irritant. That food ordinarily wholesome sometimes passes through the intestinal tract of the infant and appears in the stools is not alone a matter of theory but of frequent observation.

Overfeeding and feebleness of action on the part of the digestive glands are probably too often invoked in explanation of this condition.

That this form of summer complaint is not similar to a simple intestinal irritation caused by taking indigestible food is plain to every one on reflection. In the latter, when the *indigestible* food or other materials have passed, the cause of the intestinal irritation has been removed and the child is practically well; but in the former, even after the *undigested* food has been removed, the cause of the trouble still remains—viz., the abnormal intestinal bacteria—to interfere with the digestive process and continue the disease. That the bacteria which produce summer complaint by the production of poisonous ptomaines or irritating materials may also act in this way goes without saying.

In my opinion, this cause is a factor in almost every case of summer complaint and is at times the chief, if not the sole cause of this disease. This, I think, is more likely to be the case in the milder acute as well as in some of the chronic forms of the disease.

It seems probable that this form of the disease may be a great predisposing cause to the other forms.

In the second place, bacteria may cause summer complaint by the formation of irritating materials during the fermentation of food stuffs in the intestinal canal.

This is probably the great cause of summer complaint. It is a factor in most of the cases and a chief factor in a great many.

Dr. Christopher, in his article on summer complaint previously referred to, makes two great clinical classes of this disease: "Those in which the intestinal fermentation is acid" and "those in which the intestinal fermentation is putrid."

In the large number of cases characterized by the acid fermentation, the symptoms are caused, not by poisonous alkaloids, but by irritating materials formed by an abnormal intestinal fermentation of carbohydrates.

In the still larger class of cases which are characterized by the putrid fermentation, as well as the groups of cases which have neither of these characteristics, we, in the majority of instances, do not have the slightest evidence of ptomaine poisoning; it is only in the minority of instances that this cause is active, and this is in accordance with our knowledge of the formation and physiological action of ptomaines, although the growth of microörganisms in albuminoid material probably always results in the formation of these bodies, yet it must be remembered that comparatively only a few are poisonous. The great majority of ptomaines are perfectly harmless; if this were not the case, we would have dangerous alkaloids constantly present in the intestinal tract, since the conditions necessary to their formation always exist there.

For these reasons, then, we conclude that the symptoms in those cases caused by abnormal fermentation of albuminoids are caused, in the majority of instances, not by physiological poisons, but by other irritating chemical materials formed from food stuffs during the fermentation.

In the third place, bacteria may cause summer complaint by the formation of ptomaines which act as physiological poisons.

This is the chief immediate factor in the production of the symptoms in quite a large number of cases in which an abnormal intestinal fermentation of albuminates is the cause of the disease; when this fermentation results in the formation of a poisonous ptomaine, we have the poisonous symptoms produced by the particular alkaloid formed so overshadowing all others in importance and violence that the ptomaine poisoning becomes for the time being the disease itself, to be met by prompt and appropriate treatment.

The characteristics of each case of this kind, not only as to symptoms present, but as to their violence, must depend on the quantity and poisonous properties of the particular ptomaine formed.

The three varieties of summer complaint which have been described may be spoken of in brief as, 1, bacterial indigestion; 2, abnormal intestinal fermentation; 3, ptomaine poisoning.

This classification, founded on their etiological and pathological characteristics, will, I think, be found of great value from a clinical standpoint, since the symptoms and treatment of each class must be radically different; but of this I shall have more to say at some subsequent time.

NOTES FROM A FOUR MONTHS' SURGICAL SERVICE AT THE ALBANY HOSPITAL.[1]

BY A. VANDER VEER, M.D.,

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TUMORS OF THE BREAST.

During my term of service twelve cases of new growth in the breast presented for treatment, of which seven were scirrhous carcinoma, three sarcoma, one lipoma and one cystic degeneration. In four cases there was evidence of heredity. Ten operations were done. Two cases of recurrent carcinoma were refused second operation. In four cases the axilla was invaded and glands removed.

I wish to describe somewhat fully the method which has been pursued in the operation and after-treatment of excision of the breast. After the usual laxative and general bath, the field of operation, including the axillæ, is shaved and washed with soap and water and finally with an ethereal solution of bichloride of mercury, 1 : 2000. Patient etherized, ready for operation; the instruments are brought in a tray of hot water; towels are wrung dry from a hot solution of bichloride of mercury, 1 : 1000, and spread about the field of operation and wrapped about the arm. The first incision, elliptical, sweeps around the lower border of the breast below the nipple, through healthy skin and tissue only, down to the capsule of the breast; a second incision, also elliptical, sweeps above the breast; the flaps are rapidly turned back, and the breast, capsule and muscle (if necessary) removed; the vessels are caught by pressure-forceps as divided. When the breast is removed, the wound is filled with sponges wrung from the plain hot water in which they were washed and the flaps held together by an assistant. The axilla is now opened, if necessary, to remove the enlarged glands or for exploration, either by extending the incision or by a new one and the glands turned out, together with adipose tissue. Next, the vessels and bleeding points are ligated with catgut; the wound flushed with warm bichloride of mercury, 1 : 2000; rubber drainage introduced and held in position by safety-pin properly arranged in the dressing, and the wound closed by interrupted catgut sutures. Over the line of incision a thin gauze pad moistened and sprinkled with iodoform is placed. The dressing is completed by Gamgee pads, several layers of gauze and bandage.

The first dressing is usually allowed to remain until the third or fourth day, unless considerable oozing or a rise of temperature takes place. At the first dressing the rubber drainage is removed to give place to horsehair, in fat breasts, or it is wholly left out in thin breasts when no oozing continues. The second dressing is allowed to remain a week or more. In cases in which the skin is so much infiltrated that sufficient flaps cannot be made to close the wound, the dressing is made very much the same, only boric acid ointment is substituted for dry iodoform dressing.

CASE I.—Miss H. V. S., aged forty-nine, a native of the United States, and by occupation a domestic, was admitted to the hospital October 18, 1887. Her family history showed heredity with regard to new growths; otherwise good. Previous health good. About eighteen months ago she noticed a small nodule in her left breast, to which she gave little attention. Six months later it had grown to the size of an orange and became somewhat painful. She then went under the care of a female "cancer doctor," under whose treatment she remained until a few days before admission to the hospital. Patient presented no cachexia, was well nourished, appetite has recently failed, sleepless nights due to pain. Breast very large, freely movable, somewhat nodular, and at several points a deep purple blush appeared. The day following her admission the breast was

[1] For assistance in preparing the following report I am greatly indebted to Dr. W. G. McDonald, House-Physician, Albany Hospital.

amputated; a portion of the pectoral muscle was removed. Wound left to heal by granulation. Axilla free from lymphatic enlargement. Tumor, a cystic sarcoma, weighed five pounds. Patient was discharged from the hospital November 17, 1887; wound nearly closed and healthy in appearance.

CASE II. - Mrs. M. C., aged seventy, a widow, was admitted to the hospital November 11, 1887, suffering from scirrhous carcinoma of breast. Family history revealed that her mother had died from cancer at sixty. Patient was the mother of nine children, all of whom were nursed. Always had worked very hard. Two years ago she noticed a tumor, but kept it secret from the family and her physician. Lately it had grown very rapidly and showed a tendency to ulcerate. The growth now implicated the whole breast; nipple retracted, axillary glands involved. Breast amputated, axilla entered and glands removed. Wound left to heal by granulation. Patient discharged December 12, 1887, with a healthy looking ulcer.

CASE III.—Mrs. T. R., aged forty, married, native of United States, was admitted to hospital January 10, 1888, with the following history: Mother died of cancer; a tubercular tendency upon the paternal side. Five years ago a few drops of blood oozed from nipple, and a small nodule was discovered. It grew very slowly for two years, then somewhat more rapidly until November 25, 1886, when breast and axillary glands were removed at the Albany Hospital. The wound healed kindly and patient was discharged from hospital with a clean, soft cicatrix. About three months later a small nodule appeared in the border of the cicatrix and this in turn was followed by others, spreading out over site of breast and into the axilla. January 10, 1888, patient again entered hospital. After careful examination and consultation, in view of the extent of infiltrated tissue and great probability of immediate return, I advised against another operation. I have learned that she subsequently entered a hospital in Philadelphia and was operated upon (an operation lasting about four hours), and recovered from the operation, but with a return of the growth immediately after.

The foregoing cases of tumors of the breast, which I have thought of sufficient interest to report, illustrate: First, the danger of procrastination and, also, the willingness of patients to listen to all manner of treatment that may be suggested by officious friends.

As is so often the case, these patients would have been very much better had they submitted to an early operation; and one cannot but remember the words of wisdom so earnestly expressed by the late Professor Gross, in one of his last papers, pleading for early operation in all cases of malignant growths.

The last case illustrates a point that one cannot help observing in this class of cases; that when patients have once determined upon an operation, they will have it a second, third or more times, in the hope of recovering their health, though the surgeon may not always encourage them in it. Would that they might be taught to make use of their courage early.

INTESTINAL OBSTRUCTION AND HERNIA.

Two cases of intestinal obstruction presented for treatment.

CASE IV.—Miss F. E. H., aged forty-six, single, native of the United States, and by occupation a dressmaker, gave a good family history. When fifteen years old had suffered from dysentery, followed by peritonitis, since which she has suffered much from abdominal pain and difficult defecation. For the last twelve years has been unable to secure movement of bowels except by use of large enemata. Upon physical examination a mass about the size of an orange could be made out in the left inguinal region. Uterus seemed free from growth. A diagnosis of probable solid tumor of broad ligament pressing on the descending colon made, and exploration decided upon. October 7th, a short median incision was made and the splenic flexure of colon found bound down to the left iliac fossa by old adhesive bands, a dilated portion of colon giving the appearance of tumor felt. The adhesive bands were divided and thoroughly loosened up and abdomen closed. Patient speedily recovered from operation very much improved.

CASE V.—Mr. S. V. V., aged twenty-two, single, native of the United States, and by occupation a knitter, was admitted to hospital December 1, 1887, having already suffered five days from symptoms of intestinal obstruction. His condition being very good, large enemata were given, both fluid and gaseous without success. During the following night stercoraceous vomiting again set in and an exploration was determined upon early in morning. When the abdomen was opened, a portion of the ileum was found occluded by a diverticulum having become attached to the crest of the sacrum. The diverticulum was removed, and the attached portion was invaginated upon the bowel and the opening closed by continuous catgut suture, and abdomen closed.

Patient never rallied well from operation. There were signs of great cardiac depression, and although stimulants were administered freely, he died sixty hours after operation. No vomiting occurred after operation, and bowels moved spontaneously twelve hours before death. An autopsy eight hours after death showed that the abdominal wound was healing nicely; that the peritoneal congestion had largely subsided and that the intestinal wound was closed by firm adhesion.

Three operations were done for the relief of hernia: one for strangulated femoral, one for irritable femoral and one for irritable inguinal, all successful.

CASE VI. *Strangulated femoral hernia.*—Miss N. C., aged twenty-five, single, native of United States, and by occupation a domestic, was brought to the hospital as an ambulance case, with the following history: Two days before, while lifting a tub of water, she felt a sudden giving way, with sharp abdominal pain, and noticed a small tumor in the

groin. A physician was called, who made a severe and prolonged effort at taxis. Immediately after admission the parts were scrubbed, shaved and washed with an ethereal solution of mercuric chloride; patient etherized; incision made; sac incised and a very dark and congested intestine exposed. The constriction was relieved, when the intestine improved in appearance and was returned. Sac was drawn down, invaginated, ligated with heavy catgut and removed. Wound drained by horsehair, closed with catgut, dressed with pads and bichloride gauze; over all a spica bandage of gauze. Temperature never above 99.5° F. First dressing changed on the fourth day and drainage removed; second dressing left on two weeks. Patient discharged December 24, 1887, cured, three weeks after admission.

CASE VII. *Reducible inguinal hernia.*—F. S., aged fourteen, native of United States, was admitted to hospital December 10, 1887, with a completely reducible inguinal hernia. He had been unable to have a truss fitted that would retain hernia or that could be worn with comfort. It was decided to try the Heaton method, and twenty minims of Heaton's fluid were deposited about the inguinal ring, after scrubbing, shaving and washing the overlying skin with ethereal solution of mercuric chloride. A firm pad and spica made the dressing; patient was put in bed with hips elevated, and not permitted to get up for two weeks. Considerable inflammatory reaction took place, and some induration of tissue remained when he left the hospital, December 24, 1887, cured.

CASE VIII. *Irritable femoral hernia.*—Miss M. A. D., aged twenty-six, native of United States, and by occupation a housewife, was admitted to the hospital with the following history: Last February, while lifting a heavy kettle from stove, was taken with sudden and severe pain in the lower abdomen. A physician failed to discover the hernia until six months later. The hernia, which was reducible at times, could never be retained by a truss with comfort. Late in August decided symptoms of strangulation occurred and the hernia was reduced with great difficulty. Early in October, after precautions used in other cases had been taken, sac was opened, and hernia returned, after small section of omentum had been removed by ligation with Staffordshire knot. The sac was pulled down, invaginated, ligated and removed. Dressing as in Case I. Patient recovered without material rise in temperature and was discharged cured October 29, 1887. This patient came to my office May 20, 1888, thoroughly well.

ABDOMINAL SECTION.

In the four months' service, ten abdominal sections were made, two of which were done before the class of the Albany Medical College and in the general operating amphitheatre of the hospital. Four exploratory incisions were made. In one case, extra-uterine pregnancy was suspected. The incision revealed fibroid and soft myxoma implicating the whole body of a then pregnant uterus. This operation was followed by recovery. Incisions were made in two cases of fibroid, having in view supravaginal hysterectomy or the removal of tubes and ovaries. The growths were very adherent in both cases, but the appendages were removed. One died and one recovered. Another exploration revealed colloid carcinoma arising from ovary and infiltrating mesentery. A large mass was removed, the abdomen was washed out with sterilized water (105° F.). Patient died on the fifth day from exhaustion.

Three cases of ovarian cyst were operated upon successfully, although it was necessary to sew one sac into the incision on account of adhesions. The history of two cases of intestinal obstruction have been given elsewhere in this paper. A case of hemato-salpinx was operated upon, with entire relief from symptoms.

A case of renal cyst is of sufficient interest to warrant a somewhat fuller history:

CASE IX.—Miss B. D. B., aged twenty, native of Ireland, and by occupation a domestic, was admitted to the hospital in September, 1887. Family history good. Had always been well and strong. First menstruation at fifteen, painless and scanty, but regular. First noticed enlargement of abdomen five years ago. Tumor commenced in middle of abdomen and was very hard. Two years ago grew very large and was tapped five times at frequent intervals, and a large quantity of dark, frothy liquid was drawn each time. After last tapping sac did not refill until the spring of 1887, when it began to enlarge rapidly. When first ill, suffered from amenorrhœa for a year, since which she has been regular. Since tumor appeared, has passed but little urine; and during summer had a complete suppression. Many of the facts were learned from the patient after operation; she did not give an intelligent history. October 3, 1887, the operation was done. Usual median incision was made, a large cyst (supposed ovarian) was exposed, found adherent, but tapped. The process of enucleation was very tedious and a large number of ligatures were introduced. While working for a pedicle, the right kidney was reached and the cyst's origin made out. The pelvis of the kidney, together with the vessels, was included by a single ligature, the Staffordshire knot. Patient reacted well from operation. Temperature never rose above 101° F. She rapidly convalesced and returned to her home and occupation. Have heard recently (May, 1888) that she is in good health. The average excretion of urine, for three weeks after the operation, was twenty-four ounces per day; urea approximately three hundred grains.

The fluid drawn from the cyst was dark, specific gravity 1010, contained albumin, paralbumin, abundant chlorides, no apparent amount of bile pigment, no cholesterin, and urea approximately two per cent. Microscopically nothing was determined.

While from the history of the case obtained from the patient before operation and the examination, I was led into a diagnostic error, manifestly the median abdominal incision was the only one by which the

cyst could be successfully removed. I am convinced that all growths of the kidney, cystic or otherwise, that have reached any considerable size, should be approached by the median incision. On the other hand, renal calculus, abscess, occlusion of the ureter, or any cause which may call for the exploration or removal of a not overly enlarged kidney will require the lumbar incision.

TUMORS OF THE BLADDER.

CASE X. *Papilloma with phosphatic incrustations, in a female.*—Mrs. C. K., aged forty-five, married, a native of the United States, and by occupation a housewife, was admitted to the hospital October 18, 1887. She gave a history of vesical irritability, passing sand and ammoniacal urine, containing mucus, pus and blood for the past two years. Recently has had several vesical hemorrhages. Patient etherized, urethra dilated and bladder explored by the finger. A villous growth was found upon the left side of the bladder, together with general phosphatic incrustation. The curette was used with considerable vigor and detritus removed by Bigelow's evacuator. (After-treatment will be spoken of later.) Patient discharged, improved, November 1, 1887

CASE XI. *Papilloma of bladder; perineal cystotomy (median); recovery.*—Mr. L. H., aged forty-seven, married, a native of the United States, by occupation a carpenter, gave the following history: An uncle died of cancer; family history otherwise good. When fourteen years old he received an injury to the testicle, after which it took on a neuralgic condition, and it (the left) was removed two years ago by myself. About the time of the removal of the testicle, the patient had a hemorrhage from the bladder. He was very comfortable for a year after the operation, when cystitis set in; the bladder became very irritable; hemorrhages took place at frequent intervals. He suffered from severe pain in the perineum. The prostate was enlarged and tender. Urine wholly by catheter. A careful search revealed no calculus. January 3, 1888, the patient was etherized, placed in lithotomy position, median incision made with free division of prostate. By hypogastric pressure the thickened and contracted bladder could be brought against the exploring finger. A papillomatous growth could be felt spread over a considerable area of the bladder. It was removed by means of forceps and curette. Bladder was washed with warm borated solution and drainage introduced. Patient discharged January 31, 1888, in good condition. Have received letters since, stating that he is in good health.

CASE XII. *Papilloma of bladder; perineal cystotomy; death from surgical kidney.*—Mr. F. D., aged twenty-seven, married, a native of Canada and by occupation a plumber, gives a good family history. Had gonorrhœa ten years ago; had been somewhat intemperate in his habits. Five years ago had slight hemorrhage from the bladder. Suffered more or less, at times, until a year ago, when, after great exposure, the symptoms became greatly aggravated. He entered the hospital January 4, 1888, and was treated by washing out the bladder with borated solution and the administration of various remedies, all without material improvement. February 2, 1888, the patient was etherized and the same operation done as in Case II. Patient did very well until the fifteenth day, when urinary excretion became very small, vomiting became troublesome, and the patient sank and died February 19, 1888. An autopsy showed far advanced pyonephritis. Casts had been found in the urine before operation.

The after-treatment of all the cases was very similar. Drainage was introduced in all; in Case X. a self-retaining catheter. In the other cases a large catheter was introduced through the perineal wound and retained by a rubber band attached to the catheter, the bands being attached in turn to an abdominal belt very much after the manner of a uterine supporter, the catheter cut off an inch or two from the body. This device has proved very satisfactory in our hands. Through the drainage tube the bladder was washed every day with a warm solution of benzoate of sodium (a teaspoonful to a pint). This, together with tonic doses of quinine, iron and a bland diet, constituted the whole treatment.

How long shall drainage be allowed to remain? is a vexed question here as elsewhere. In general terms, it should be allowed to remain until the urine has returned to a normal condition and vesical irritation is largely reduced or has disappeared. After two weeks a clamp may be placed over the end of the drainage tube and the patient be allowed to sit in an easy chair. There is likely to be no incontinence. The clamp may be removed from time to time and the retained urine evacuated. In this way the tolerance of the bladder may be determined.

In all these cases drainage was essential to cure. I have yet to learn of an operator who is satisfied with suprapubic drainage. The perineal route to the bladder was selected because of the superior facilities for drainage, the benefit to be gained by section of the prostate, the simplicity of the operation and the ease of after-treatment.

Case XI. was especially benefited by section of the prostate. Mr. Reginald Harrison (Lettsomian Lectures for 1888) dwells at length on the sphincter and supporting function of the prostate. In contracted bladder, long subjected to spasm and irritated by the presence of foreign bodies and chronic discharges, it seems that the division of this muscular band must be followed by the same relief that is experienced in fissure of the anus after rupture of the sphincter ani.

When the time comes for the removal of the drainage tube we shall have accomplished another purpose in many cases, the removal of the obstruction caused by the hypertrophied prostate.

The advantage of suprapubic cystotomy, by affording a view of the field of operation, is apparent rather than real. In this relation may be

mentioned three cases of vesical calculus, two of which were operated upon by litholapaxy, with one death from surgical kidney. The other case was so unpromising that no operation was advised.

SURGERY OF THE JOINTS.

CASE XIII. *Floating cartilage.*—Mr. J. R., aged nineteen, native of United States and by occupation a printer, was operated upon at the hospital January 21, 1888, and a floating cartilage the size of a quarter silver piece removed. Local anæsthesia by cocaine. The history is as follows: The fourth of July, 1887, his knee caught in a semi-flexed position while running, and he was unable to extend the leg again until he worked it a little in various directions. This accident recurred quite frequently, and finally the patient discovered a movable body within the joint cavity, which led him to seek treatment. The cartilage was caught in a pocket and retained by compress and bandage for a few days, when a clean cut was made and cartilage removed. Limb dressed on straight posterior splint, antiseptic dressing, no drainage. Patient did well, save an intercurrent attack of tonsillitis, which caused a considerable rise of temperature, leading to a removal of dressings, only to find limb in good condition.

CASE XIV. *Excision of the outer condyle of the humerus.*—Master W. C. B., aged nine, fell from a cherry tree four months prior to his entrance into the hospital, fracturing the external condyle of the humerus and dislocating the forearm backward. The treatment instituted at the time of fracture had resulted in an ankylosed joint and useless arm.

An attempt was made to break up ankylosis under ether, but it failed. An incision was made along the outer side of the joint. The external condyle removed, dislocation reduced and arm dressed on angular splint. There was a small amount of suppuration about external wound. After two weeks, passive motion was begun. The boy has gained a fairly useful arm, with free motion at elbow. Pronation and supination, as well as extension and flexion, being quite readily performed.

CASE XV. *Subspinous dislocation of the humerus. (Old.)*—Mr. R. D., aged forty-eight, by occupation a cowboy, and a resident of New Mexico, was referred by Dr. McLean, and admitted to the hospital November 30, 1888. His case is somewhat rare. I believe there are but a few more than thirty cases in the whole literature upon this subject. The accident occurred several months prior to his admission. The mechanism of the dislocation was as follows: He was herding cattle with a "bucking" mustang and was thrown over the mustang's head, striking first on his extended hand and then on the point of his shoulder. He was seen by a local physician, who claimed to have reduced the dislocation. After the dressing was removed his arm was powerless Was unable to touch opposite shoulder by four inches. After consultation an ineffectual attempt at reduction was made both by extension and counter-extension and by fixation of shoulder and manipulation. An operation for the restoration of the head of the humerus to the glenoid cavity was advised, but declined by the patient.

Amputation of the thigh was done four times, with three recoveries and one death. Three cases were of tubercular arthritis of the knee-joint. One was of thirty years' standing; had been arrested, but five years ago, while on a debauch, he fell and injured the knee-joint again, since which it has undergone continued suppuration; patient has had night-sweats and he was very feeble. Resection was impossible, owing to extensive complication of the condyles and haft of femur and of the head of the tibia.

CASE XVI.—A man, aged twenty, who gave a history of trouble with the knee dating from an injury seven years ago. The condition of the patient and of the limb was similar to that of Case XIII. Amputation was done. Both of these cases recovered. Wound healed by first intention. Sweating ceased. Both gained flesh and strength before leaving the hospital.

CASE XVII.—Miss B. H., aged sixteen, native of United States, was of the tubercular diathesis. Five years ago first began to have trouble with knee. Two years ago sinuses formed, but closed partially. Has worn an extension apparatus since. This case seemed a favorable one for excision, and all the preparations were made for the operation. The condition was carefully explained to patient and friends, and excision most earnestly recommended. Patient insisted, not without the advice of surgeons, upon a clean amputation, which was done. Patient recovered nicely, and returned to her home three weeks later. An examination of the joint showed it favorable for resection.

CASE XVIII.—A most unfortunate railroad accident. Crushing of knee and extensive laceration of soft part, with great loss of blood. Was operated upon, although patient's condition was very unfavorable. After operation patient's limbs were bandaged firmly with flannel rollers and free stimulation ordered. Later, transfusion was done, twenty ounces of saline solution being thrown into his circulation. He never recovered from the shock, and died ten hours after the operation.

MISCELLANEOUS CASES.

CASE XIX.—*Lacerated wound of hand, with fracture of metacarpal bones.*—J. H. P., aged nineteen, native of United States, and by occupation a carpenter, came to the hospital with a severe wound of the hand caused by the revolving knife of a plane. The three outer metacarpal bones of the left hand were comminuted, the extensor tendons divided and the palmar arch was wounded. Patient was etherized, vessels caught and tied with catgut. Wound was now thoroughly cleansed of foreign bodies and spiculæ of bone, 1 : 3000 solution of mercuric chloride being used for the purpose. Divided tendons were now brought together and sutured by fine silk. Drainage tube was introduced and external wound closed by catgut. Hand and forearm placed upon an anterior splint, and all dressed with iodoform and sublimated gauze. Patient had but slight febrile reaction. Wounds healed without suppuration, bones united, and after five weeks fingers could

be quite readily extended, motion being very satisfactory in all save the little finger.

CASE XX. *Vesico-vaginal fistula, with occlusion of urethra.*—Mrs. C. Y., aged twenty-eight, a widow, came to us for relief November 20, 1887, with the following history: May 7, 1887, was taken in labor with second child. Labor continued for forty-eight hours after rupture of membranes, and was terminated by forceps' delivery. After delivery, patient had severe pelvic cellulitis, terminating in abscess, followed later by peritonitis. It was soon discovered that urine flowed away through vagina. She received no treatment before coming to the hospital. Upon examination the urethra was found absolutely closed by adhesive inflammation. Great difficulty was experienced in finding the fistula, it being in a fold of the vagina high up. Anterior lip of cervix sloughed.

First operation enlarged fistula, which would only admit the point of a probe, and the opening of the urethra to admit sound by use of knife. The tract of the urethra was kept open by a self-retaining catheter and the passage of sounds. She left the hospital two weeks after operation to return for second operation. Jan. 13, 1888, she was successfully operated upon for closure of fistula. Silver wire was used for sutures. Patient now passes urine voluntarily by urethra. Advised to introduce a bougie twice a week.

CASE XXI. *Vesico-vaginal fistula.*—Mrs. M. C., aged thirty-one, married, native of the United States. Has been troubled with dribbling of urine from the vagina for seven months. She dates her trouble from birth of first child. The labor was very difficult and was finally terminated by forceps' delivery. Child weighed thirteen pounds. The edges of the fistula were freshened and wound closed with six silver wire sutures. Patient did well. Sutures removed on tenth day. Union perfect.

During my four months' service, six cases of advanced carcinoma of the cervix presented for treatment. They were all peculiarly sad ones. The patients had either not called their physicians' attention to the trouble, or it had been temporized with until all hope for relief, by radical operation, was in vain. In all cases the broad ligaments, the base of the bladder, the vagina and the rectum were either wholly or partially infiltrated by the disease. In none of the cases could amputation of the cervix, by, preferably, vaginal hysterectomy have been done with any hope of relief. The early diagnosis of this disease cannot be too earnestly insisted upon.

CASE XXII. *Perforating ulcer of foot.*—Miss I. M., aged fourteen, was operated upon at the hospital, October 29, 1887. She gave the history of having had cerebro-spinal meningitis four years ago, after which there was some contraction of the plantar fascia and Achilles tendon. Nine months ago an ulcer developed on the ball of the foot near the little toe. The ulcer was very indolent, never secreting true pus and communicated with the metatarso-phalangeal joint of the small toe. The little toe and outer metatarsal bone were removed. Wound healed very slowly, but finally united well. She was discharged September 12, 1887, cured.

CASE XXIII. *Lacerated cervix with hypertrophic elongation.*—Mrs. L. S., aged thirty-seven, married, native of the United States, family history good. Previous health good. Menstruation normal; first at twelve years. Mother of three children, oldest nine, youngest born August 15, 1887, and died soon after delivery. Five years ago, shortly after delivery of second child, patient began to suffer from pelvic pain, difficult locomotion and leucorrhœa which was untreated. During last pregnancy patient suffered a great deal, and noticed a body (the cervix) protruding from vulva. At term a great deal of trouble was experienced and instruments finally resorted to. Since delivery all old symptoms have been exaggerated. Upon exposure a body congested upon side was seen protruding from vulva. Upon introducing sound length found seven inches.

Operation.—Wire écraseur drawn moderately tight at vaginal juncture and whole body drawn down. Cervix amputated by scissors, and borders closed by silver wire. No untoward symptoms appeared after operation. Sutures removed on the ninth day. Patient returned to the hospital a month later, feeling well, uterus smaller, no discharge, no discomfort.

CASE XXIV.—This case presents one of the most remarkable histories and the greatest degree of courage that I have ever seen exhibited in any one person.

Mr. G. H. C., married and has several children; occupation, farmer; residence, Grant, N. Y.; admitted to Albany Hospital, October, 1886, and, again, on February 15, 1887. Family history free from any diathesis.

Previous history of patient.—When eighteen years old, while jumping in the snow, he struck a piece of wood bruising the perineum, but producing no wound. Twenty years later he was thrown from a wagon, striking upon his head. This accident confined him to bed for three weeks Eight years later patient began to suffer from constant pain in the back. Pain was described as constant, tearing, burning; also had a feeling of weight over bladder and in perineum. The first urine voided was frequently of a creamy consistence; later, normal. Examination of urine showed a trace of albumin, abundance of pus, but no casts. No frequent desire to urinate, no marked symptoms of cystitis or stone. Was carefully sounded several times by myself.

The first operation was done October, 1886, by making an exploration in the perineum to the left of the median line and extending back toward the neck of the bladder, midway between the rectum and tuberosity of the ischium, at a point where the patient felt certain the parts were swollen at times, and from which the pus came. I made as deep a dissection as seemed safe and proper, but failed to discover any pocket of pus. From this operation the patient made a good recovery, and later on returned to his home, feeling somewhat encouraged, but insisting upon another operation later on, and, if necessary, to open the left kidney, over which he, at times, complained of much pain.

When admitted to hospital the second time, he

was carefully examined, symptoms and condition being about the same, but was sent home, for a time, to improve in general health, before an operation.

He was readmitted to the hospital April 19, 1887, and on the 20th, in view of symptoms, together with tenderness and apparent increase of area of dulness over left kidney, an exploration was made. The kidney was cut down upon and found normal in appearance. The finest needle of the aspirator was introduced into the substance of the kidney in various directions and nothing found. Wound was flushed with mercuric chloride (1 : 2000), vessels ligated with catgut, drainage introduced, and closed with interrupted sutures of catgut. Wound healed by first intention. No serious symptoms from operation were observed. Patient left the hospital May 9, 1887, improved somewhat in mind, at least. Probable source of the pus was from an abscess about the base of the bladder.

Was again admitted to hospital October 8, 1887. His condition was the same as when last discharged, May 9, 1887. After hypodermatic injection of cocaine, patient was put in lithotomy position and median incision made upon the staff. No abscess could be found upon base of bladder within, which was carefully examined by my finger introduced.

Drainage was employed and hot dressings applied. After operation patient had three chills and a considerable rise of temperature, but made a good recovery. Left hospital November 5, 1887. Perineal wound nearly healed. Urine passed through urethra after third day.

Insists upon having one more operation, as he states he must get relief. My impression is that the abscess is situated in the vesiculæ seminales, and that an operation through the dilated rectum may reach it. November 26th he came to the hospital looking well, but there is still much pus in his urine. Passed urine six or seven times in twenty-four hours.

Case XXV. *Epithelioma of penis.*—Mr. C. M. E., aged sixty, married, native of United States, occupation farmer. Father had epithelioma. Grandfather died from some form of cancer. Eczema has been prevalent in family.

In April, 1887, was poisoned by sumach. Had previously suffered from eczema a great deal. Called a physician May 1st, when whole penis had an eczematous appearance, acquired phimosis and considerable ichorous discharge. Prepuce was slit up at that time, showing a very large ulcer. Had always been correct in his habits. Ulcer continued to increase, despite of all treatment, and became very painful. Glans at present time is twice normal size. Has the appearance of cauliflower. Patient has become broken down in health and has lost flesh. No glandular enlargement. Penis was removed near base by knife. Patient convalesced rapidly. There has so far been no return of disease.

In this case a simple elastic ligature was thrown about base of penis and controlled hemorrhage admirably.

In all, 133 operations were done. There were 7 deaths: 2 due to peritonitis, 2 to uræmia, 2 due to the exhaustion of the disease, and 1 to shock. The death-rate is, therefore, five and two-tenths per cent., not very bad, considering the class of cases that come to a general hospital for treatment.

Dressings.—Elsewhere in this paper, allusions have been frequently made to the use of antiseptics in dressings and washing of wounds. Our methods have been very simple and the antiseptic agents used neither new nor novel.

To begin with, all the gauze used is of home manufacture—that is, plain gauze medicated chiefly with bichloride of mercury. Plain absorbent gauze can be bought in two hundred yard lots at four and a half cents per yard. This is conveniently cut and folded in five yard pieces and treated as follows: First, by immersion in solution of hydrargyri bichloridum, 1 part; acid. tartaric., 15 parts; glycerin, 150 parts; aquæ ad. q. s. 1000 parts.—M. and add eosin q. s. to give a faint tint. After remaining in this solution for twelve hours, the gauze is wrung dry and packed in stoneware jars ready for use.

The addition of tartaric acid and glycerin is very advantageous, increasing both the antiseptic and absorbent power of the gauze. The bichloride gauze is used for making Gamgee pads for bandages and for iodoform gauze, by rubbing iodoform in its meshes. Iodoform and boric acid have been used in dressing ulcers, both in powder and in ointment. Boric acid solutions have been used in washing the bladder and urethra before and after operations. A one-half per cent. solution of hydrogen peroxide was very satisfactorily used about the mouth and nose. It also acts as a powerful deodorant.

For flushing wounds, 1 : 2000 or 1 : 3000 bichloride of mercury solutions were used. In my abdominal work, hot water took the place of all antiseptics, save in the dressing. The carbolic spray has been used in the room for three hours before opening the abdomen. No poisonous effects were observed during the four months from the use of any antiseptics, save in one case, in which a slight iodoform erythema appeared upon the abdomen after an abdominal section.

MEDICAL PROGRESS.

Iodides in Aortic Aneurism.—After a study of twenty-four cases, M. Germain Sée concludes that iodides are the best treatment for aortic aneurism. They have a definite action in lessening the dyspnœa, by directly acting on the catarrhal products and liquefying them. They reduce ultra-pulmonary congestion, diminish the venous stasis, and contract the walls of the tumor. They decrease the pain, and exert a beneficial influence on the aphonia and paralysis of the vocal cords, which often obtains.

He finds that patients afflicted with this disease nearly always become phthisical subjects.—*Gazette Hebdomadaire de Méd. et Chirurg*, August 17, 1888.

Congenital Narrowing of the Arterial System. — DR. FRAENKEL, on the 25th ult. before the Medical Union of Berlin, made an address on congenital narrowing of the aortic system. He remarked that hitherto it was an affection but little known clinically; what little there was known about it was pathological and principally due to the labors of Morgagni, Meckel, Virchow and others. There are great difficulties in the way of diagnosis. One of the cases was that of a powerfully built man of thirty-four, who had œdema of the lower extremities, with a pulse rate of 100 to 112, difficulty of breathing, some bronchial râles, but otherwise no affection of the lungs. Circulatory changes were the marked feature of the case. There was pronounced narrowing of the arteries, with great tension. The heart was displaced to the left and downward; the apical impulse external to the nipple line, very broad, high and resistant, as in insufficiency of the aortic valves. The cardiac sounds were everywhere pure, but the second aortic sound was strikingly accentuated. The quantity of urine was slightly diminished and it contained no albumen. The patient was of healthy family and had always been well till his fifteenth year, since when he had complained of heart trouble and occasional shortness of breath, which clearly could not have been produced by his occupation of gardener. In his twenty-first year he was a soldier, but had to be discharged, as he could not perform the marches, owing to his cardiac trouble. He returned to his occupation and became gradually worse till he entered the hospital with dropsy. With rest, digitalis and opium he improved rapidly and was discharged.

Diagnosis.—Congenital narrowing of the aortic system. Whilst at work the symptoms soon returned, and the patient again entered the hospital, where he died in a short time with great dyspnœa. The autopsy showed very marked narrowing of the aortic system, commencing at the attachment of the aorta and implicating the whole system.

A second case was that of a laborer, who entered the hospital in 1886 on account of general malaise, but without any particular complaint. All the organs were healthy, except for striking symptoms in the circulatory system. The patient, who was of extraordinary robustness, showed abnormal narrowness of the arteries, with marked dilatation of the left ventricle. The apex beat was very resistant, external to the nipple line, with accentuation of the second sound. There was absence of history of straining efforts. Although temporary improvement took place under treatment, the lungs became tuberculous and the patient died of pneumothorax. The autopsy showed striking narrowness of the whole aorta.

Such cases are most frequently met with in women and in girls, and are diagnosticated chlorosis. In men, on the other hand, who make more demands on the heart, the disease generally leads to dilatation of the left and then of the right ventricle. Cases in which such calls are not made on the heart carry the affection to their lives' ends. Rest naturally brought about temporary improvement, until the possibility of it was at an end from the advancing disease. The autopsy did not always confirm the diagnosis. He mentioned three cases, one a coachman, a second a young soldier, and a third a naval officer, in which improvement had taken place, and a restful mode of life had rendered the improvement permanent.

Résumé.—There are individuals with congenital narrowness of the arterial system in whom disturbances develop, usually very slowly, when they are subjected to exertions which are greater than the heart is equal to under the circumstances.—*Medical Press*, July 18, 1888.

Silico-fluoride of Sodium as an Antiseptic.—DR. CONRAD BERENS, in the *Therapeutic Gazette* of July 16th, after referring to culture experiments demonstrating the usefulness of the silico-fluoride of sodium as a germicide, anti-ferment and deodorant, and its property of coagulating albumen, adduces clinical evidence confirmatory of these results. The drug was used locally in solutions of from one to six parts to one thousand of water, and administered internally in doses of one grain, and proved efficacious during and subsequent to operations for cataract, in catarrhal and purulent ophthalmic conditions, in similar conditions of the nose and throat, in suppurative otitis, in uterine disorders, in gonorrhœa, in gleet, in balanitis, in gangrene, in acid fermentation of the stomach and in tinea circinata.

The silico-fluoride of sodium is soluble in water at 60° F., in proportions not exceeding half a grain to a drachm, the resulting solution being of a slightly acid taste, perfectly limpid and odorless. The writer concludes as follows: That sodium silico-fluoride is practically harmless; that it is more efficient in preventing decomposition than either bichloride of mercury or carbolic acid, in such doses as are not harmful or dangerous; that it is extremely efficient in inflammatory conditions of the mucous membranes; and that, in conditions associated with the production of pus and the results of fermentative processes, silico-fluoride of sodium acts with prompt and harmless efficiency. The more extended clinical use of the drug, I believe, will go to add further support to the evidence of its promptness and efficiency. These are reasons sufficient to call the attention of the profession to this drug.

For Chronic Acne.—

R.—Resorcin,
Pulv. amyli,
Zinci oxidi . . . . . āā ʒj.
Ung. petrolei . . . . . ʒiij.—M.

This is to be carefully applied at night, and removed in the morning by means of wadding saturated in olive oil. It causes no irritation and is very effective.—*Lyon Médicale*, August 5, 1888.

The Dietetic Treatment of Diabetes Mellitus. — CLESS (*Deutsche medizin. Wochenschr.*, 1887, Nos. 44–47) reports 56 cases of diabetes mellitus at the medical clinic at Tübingen, subjected with the best results to a purely dietetic treatment. In 4, on account of the poor general condition, a stringent diet could not be enforced; 3 were at the clinic but for a brief period; of the remaining 49, after the withdrawal of carbohydrates, sugar disappeared from the urine in 20, 2 were completely cured, and 5 almost so, in that they could take considerable amounts of carbohydrates without sugar occurring in the urine; 13 had no sugar in the urine, at least on abstinence from carbohydrates; and in the remaining 29 the amount of sugar, and in most in very decided measure, was diminished. The diet, with slight modifications, was the usual one. It is to be noted that

not every trace of carbohydrates was excluded, but the amount taken in 24 hours did not exceed 150 to 300 grains. The diet was almost exceptionally well borne; most gained in weight, and the general condition improved, sometimes notwithstanding other complications. The tentative administration of iodoform, salicylic acid and opium produced no noticeable effect.—*Centralb. für klin. Medizin*, June 30, 1888.

Sulphonal—the Influence of the Various Hypnotics upon Salivary, Gastric and Pancreatic Digestion.—CRAMER, of Freiburg before the Verslg. d. Südw.-deutsch. Neurologen u. Psychiater, stated that he had used sulphonal in four hundred and seven instances. In three hundred and seventy-seven sleep of several hours was produced; in thirty the result was incomplete, the sleep lasting only a few hours. The drug was given in tablets or with the food or drink, its tastelessness rendering the administration easy. The dose was never more than forty-five grains. Given to melancholiacs in broken doses in the course of the day the drug relieved the anxiety and restlessness, and aided the otherwise restless patients to six or eight hours of unbroken sleep. The sedative influence of the drug was marked in several instances of periodical mania.

Cramer also reported the results of comparative investigations into the influence of the various hypnotics upon the dextrin and sugar forming quality of the saliva and upon the digestive capacities of the gastric and pancreatic juices. The conversion by the saliva of the carbohydrates into sugar remains unchanged with the administration of chloral, paraldehyde, amylene hydrate and sulphonal; gastric digestion, however, is slowed by chloral, paraldehyde and amylene hydrate, while it is entirely uninfluenced by sulphonal. The function of the pancreatic juice is also almost wholly suspended by the first three, while it is undisturbed by sulphonal.

In the discussion which followed, KAST, of Freiburg, stated that the dose of sulphonal must vary for each individual case. It must especially be borne in mind that females rapidly respond to small doses. The slight solubility of the drug is increased by careful trituration and administration in a warm vehicle. Sulphonal is best given after meals.

In reply to an inquiry, Cramer stated that a tolerance to the drug did not arise and that it was not necessary to increase the dose, though the drug be taken for a long time.—*Wiener medizin. Pr.*, July 1, 1888.

Acetphenetidin.—F. MÜLLER, before the Verein für Innere Medicin, Berlin, recently stated that acetphenetidin is, chemically and actively, closely related to antifebrin. Eight to twelve grains reduce fever temperature to normal; fifteen grains are rarely necessary. The decline takes place in three or four hours and is accompanied with sweating. The apyrexia lasts three to five hours, when the temperature rises again. Chilliness is rarely noticed, rigors not at all. Tolerance is readily established, rendering increasing doses necessary. The author, in two cases, observed cyanosis, depending upon methemoglobinemia and disappearing spontaneously.

The drug exerted no influence upon the course of the disease during the progress of which it was given. It acts just as well as antipyrin, antifebrin, quinine, etc., but without secondary manifestations, such as roaring in the ears, vomiting, etc. Cyanosis may be avoided by not giving more than seventy-five grains in twenty-four hours. In the case of antifebrin, methemoglobinemia occurs more readily, because anilin is readily separated, acting as a poison to the blood.

Acetphenetidin is an anti-neuralgic in the cardiopathic headaches, in hemicrania and in neuralgias, as well as in the pains of tabes, headache, in contracted kidney, in chorea. Large doses are, however, here necessary; thirty to sixty grains must be given to obtain results. The remedy has proven itself an excellent anti-rheumatic, particularly for the early, severe symptoms, fever, pain and swelling, after which, salicylic acid readily overcomes the remaining manifestations. It ought to be useful in chronic articular rheumatism and in gonorrhœal arthritis. Like the other measures, it fails to prevent endocarditis and pericarditis. In a word, the remedy is comparable in its action to the other remedies of the group, but is preferable on account of less danger in its administration. Katz recommended the drug for whooping-cough.—*München. medizin. Wochenschr.*, July 10, 1888.

Combined Chloroform and Cocaine Anæsthesia.—PROFESSOR OBALINSKI, of Cracow, remarking the antagonism between chloroform and cocaine, determined to take advantage of it in anæsthesia for operative purposes, and has now employed the combined chloroform and cocaine method in twenty-four cases with, as he states, the most satisfactory results. He first administers chloroform by means of an Esmarch's mask until the stage of tolerance is reached, which is generally in from four to twelve minutes, with the use of from one to three drachms of chloroform. He then injects into the region about to be operated on a solution of cocaine of the strength of from three to five per cent., the total quantity of cocaine injected being from three- to five-sevenths of a grain. Even more of this might, he thinks, be safely used, both because chloroform is the best antidote to cocaine and because part of the cocaine is about to be removed from the body by the operation. After the injection no more chloroform is as a rule given, unless in protracted operations, when very small quantities are administered at considerable intervals. For this method several advantages are claimed, amongst others the following: A smaller quantity of chloroform is sufficient; vomiting is very rare; the depression on awaking is much slighter than when chloroform only is used. The only disagreeable symptoms which Professor Obalinski has observed have been excitement and throwing about of the arms in some nervous people, but as this occurs when chloroform alone is used, it is not at all certain that it ought to be ascribed to the cocaine. He recommends the combined method for extensive operations, finding the local use of cocaine usually quite sufficient to render minor operations painless.—*Lancet*, August 4, 1888.

Saccharin.—M. CONSTANTIN PAUL is loud in praise of saccharin, and thinks failures from its use are due to the fact that it is more especially a medicament than a food. He finds that after five months' use no serious gastric disturbance resulted. It is an efficient antiseptic, and in a 1 : 500 solution wholly corrects the formation of staphylococcus pyogenes aureus. He recommends its use in lavage of the stomach, and finds it especially good when

that organ is the seat of cancerous growth. He is conducting experiments and hopes to prove its value in destroying the microbes of typhoid, erysipelas and puerperal fever.—*L'Abeille Médicale*, July 16, 1888.

Treatment of Rachitis.—DR. A. JACOBI, in *Archives of Pediatrics*, says, "Rachitis due to, or connected with, *digestive disorders* demands the correction of the latter. Gastric catarrh is not frequently primary; more commonly the consequence of faulty diet; but it is in both cases the cause of anemia, and of either insufficient or abnormal secretion of both the mucous membranes and the glands. The gastric catarrh of rachitis is preëminently acid, thus neutralization of the stomach is required before every meal and between meals. Prepared chalk, calcined magnesia, bicarbonate of sodium, the several preparations of bismuth, find their proper indications in this condition. The salicylate of bismuth, animal carbon, resorcin, find their places, besides aromatic teas, in complications with fermentative processes in the intestine and excessive flatulency. When the secretions of the stomach are merely insufficient, the addition of chloride of sodium in proper quantities will facilitate the formation of hydrochloric acid. When this does not suffice, pepsin and muriatic acid, the latter largely diluted, will take the place of the physiological gastric juice; and bitter tonics, and alcoholic stimulants, also, diluted, will stimulate a normal secretion. Still the selection of a proper food forms the main part of the indications.

When, twenty years ago, C. Wegner fractured the bones of rabbits and fed the animals on minute doses of phosphorus, he found that these bones would heal in a much shorter time than those which were not so supplied. This operation induced him to employ the drug in all cases of subacute and chronic ostitis, Pott's disease, caries of the tarsus; and a great many cases led him to conclude that recovery is more readily accomplished under this treatment. Phosphorus is, by virtue of its irritating effect, when given in small doses, a tissue-builder, when in large doses, a tissue-destroyer. Thus it is that he is convinced of its tissue-building properties in other parts also. He has availed himself of this quality of phosphorus for other purposes also. It has served him well in those ominous cases, of purpura and similar processes, in which a congenital or acquired ill nutrition of the bloodvessel walls results in habitual hemorrhages.

The dose of phosphorus in these cases is from one-two-hundredths to one-one-hundred-and-fiftieth of a grain three times daily. He generally prescribes the oleum phosphoratum of the Pharmacopœia, which contains one part of phosphorus in ten parts of ether and ninety of oil. Half a minim contains one-two-hundredths of a grain. The oil solutions must not be kept in a concentrated form lest they be decomposed. A mucilaginous emulsion is the best mode of administration, for which he sometimes substituted Thompson's solution. On no account must we be tempted to try in their place the phosphates, the uselessness of which—in such cases—he has discussed extensively in a previous paper. The hypophosphites of the Pharmacopœia, with or without iron, are a better preparation than the former."

Amylene Hydrate and Chloral. — MAYER (*Therap. Monatsh.*, July, 1888) has observed that amylene hydrate is not only an hypnotic, but also a sedative, especially in diseases of the chest, promptly allaying cough. The irritation in the throat ceases before sleep is produced. He recommends its administration in doses of forty-five grains, in two tablespoonfuls of red wine with sugar; on account of its insolubility, to be recently mixed. He gives chloral similarly:

R—Chloral hydrat. . . . . 3j.
Succi liquiritiæ . . . . . 3j.
Aquæ dest. . . . . 3x.—M.
S. A tablespoonful (chloral, gr. xxiv).

Poisoning by Camphor.—A fatal case is reported, in the *Australian Medical Journal*, June 15, 1888, the victim being a girl of eighteen who had been in the habit of eating camphor. She was unconscious when seen by the physician and efforts to arouse her were fruitless. She died in convulsions. The post-mortem gave entirely negative results.

Deodorized Iodoform. — To overcome the persistent penetrating odor of iodoform, CANTRELLI adds one part of menthol and one part of oil of lavender to twenty parts of iodoform. For cleansing the hands a small quantity of an alcoholic solution of oil of lavender is added to the water.—*Corresp. Bl. für Schweiz. Aerzte*, July 15, 1888.

Salol in Catarrh of the Bladder.—ARNOLD, of Stuttgart, in the *Therap. Monatsh.*, for July, relates the case of a patient, eighty years of age, with hypospadias, in which, on account of retention of urine, from paralysis of the detrusor urinæ, catheterization twice daily became necessary from the 2d of January. The urine continued clear and of acid reaction until the 20th. At this time, there was some difficulty in passing the catheter. Notwithstanding its most careful disinfection, acute cystitis manifested itself on the 21st. The urine became of ammoniacal odor, of alkaline reaction, turbid and precipitated a sediment of bloody mucus. Fever set in, with tenderness over the bladder and with strangury. On the 24th, the temperature was normal and the pain in the region of the bladder had disappeared. In spite of rest abed, milk diet, cataplasms and warm baths, the urine maintained its abnormal condition until February 8th. Fifteen grains of salol were now given twice daily. As the drug was well borne by the stomach, the dose was increased to forty-five grains daily. To determine the action of the medicament, the urine was collected in appropriate receptacles. With the use of thirty grains a day, the urine slowly cleared up; the evening's urine was slightly alkaline and still ammoniacal; the morning's urine was slightly acid. Taking forty-five grains daily, the urine partook of a dark greenish color, but rapidly became clear; the discolored sediment, previously present, steadily diminished. On February 16th, the urine, to the last drop from the catheter, was entirely clear and acid in reaction; more urine was passed spontaneously than had been so passed in many years. On the 18th, the salol was tentatively withdrawn; the day following, the urine was again cloudy and deposited a sediment. Forty-five grains a day were then given until the 28th; the turbidity disappeared after the first dose. A second tentative withdrawal of the salol on the 29th of Feburary was followed by a result similar to that which followed the withdrawal on the 19th: turbidity and

deposit of sediment, though in less degree. Forty-five grains were daily administered until mid-March, when the patient got out of bed; from that time on, thirty grains were given until April 3d, when the dose was reduced to fifteen grains. In a few days, the urine, which had hitherto remained clear, again became turbid and deposited a sediment. At the same time the frequency of micturition was increased. Thirty grains of salol were again ordered, followed by the disappearance of turbidity and sediment. Up to the 24th of April, five ounces had been administered. The general condition of the patient was excellent and the urine of normal condition.

The efficacy of the drug is assured in this case by its tentative withdrawal. Forty-five grains a day sufficed to check the ammoniacal fermentation in the bladder and to maintain the urine clear and of acid reaction. It must be added that the salol was well borne; the tongue became clear and the appetite improved.

For Enlarged Breasts.—After stating that the internal administration of preparations of iodine decidedly reduces the women, KISCH (*Deutsch. med. Zeitung*, No. 32, 1888) recommends the following for enlarged breasts with excess of adipose tissue:

R.—Iodoform. pur. (fab. Tonk. deodor.) 1 part.
Vaselin. pur. . . . . 15 parts.
Ol. menth. pip. . . . . q. s.—M.
Ft. ung.

S.—To be rubbed into the breasts, which are then to be covered by linen moistened with warm acidulated clay:

R.—Alum. crud. . . . . 1 part.
Plumbi acetat. . . . . 5 parts.
Aquæ dest. . . . . 100 parts.—M.

And covered with rubber paper. The dressing remains twelve hours, is changed morning and evening and is continued for several weeks. So that the breasts, after the removal of the fat, may not become too much relaxed or wrinkled, the author has them rubbed with one of the aromatic spiritis and has the breasts supported by appropriate elevating bands.—*Medicin. Chirurg. Rundschau*, August 1, 1888.

Guaiacol.—It is suggested by SAHLI that this be used in place of creasote, because its composition is constant and unchangeable, while that of creasote is frequently uncertain.—*Les Nouveaux Remèdes*, Aug. 8, 1888.

A Phenacetin Exanthem.—In a case of anemia, with sleeplessness and headache, in which the bromides and antipyrin failed, VALENTIN, of Berne, administered nine grains of phenacetin at night. On two successive evenings, there was extreme heat of face, preventing sleep. The remedy was withdrawn, but renewed in a week, in doses of fifteen grains. The heat of face again occurred. During the night, it was noticed that the body was covered with red spots. At eight o'clock the next morning, the temperature was 101.5°; in the afternoon, 100¼°. The spots were profuse on arms and legs, scantier on the trunk; the majority were not larger than lentils, in part acuminated; they were darker at the centre than at the periphery; some were flat; all partly disappeared upon pressure. Headache was still present, as was the heat of face, though less marked than during the night. Urine was dark, but free from blood-coloring matter. The eruption disappeared on the following day, though anorexia and languor remained.

It may be presumed that phenacetin, like the salicylic acid compounds, like quinine and the other antipyretics, gives rise, in those specially susceptible, to a purpura-like affection, when taken in doses easily borne by others.—*Therap. Monatsh.*, July, 1888.

Serpent Bites and Hoàng-nàn.—BARTHÉLEMY records two cases of bites from poisonous serpents treated successfully by this drug. In both the symptoms were extremely alarming and the depression marked. He attributes the results to the direct excitant effect of the drug on the cerebro-spinal centres.—*Gazette Médicale*, Aug. 9, 1888.

Acetic Acid as an Antiseptic in Obstetrical Practice.—ENGELMANN (*Centralbl. für Gynäk.*, No. 27) recommends acetic acid as a disinfectant in obstetrical practice. By numerous experiments, continued over a long period, he has shown that its antiseptic virtues compare with those of carbolic acid. It has the advantage of being entirely non-toxic, so that it can be used in a more concentrated form. It has, besides, certain hemostatic properties. It possesses, in addition, the peculiarity of saturating the tissues, which other antiseptics do not, corrosive sublimate, for instance, forming an insoluble albuminate. With the mercuric chloride it shares the property of attacking metals, though not in so marked a degree that the instruments suffer. The forceps may be placed for a quarter of an hour in a three per cent. solution of acetic acid, without harm. It is unfortunate that soap is not soluble in the acid, making two ablutions necessary. The skin, however, is made soft and pliant. The author usually uses three per cent. solutions, at times five per cent., though the latter cause burning sensations at wounded surfaces, so that they are only used when septic infection already exists.—*Wiener medizin. Presse*, No. 30, 1888.

Antipyrin Subcutaneously.—VON BRINCKEN (*Therap. Monatsh.*, July) recommends the injection of a 2 per cent. solution of cocaine to prevent the pain of the subcutaneous administration of antipyrin. He has used the procedure in two cases of sciatica and in one of lumbago, always with the same result. The patients, females, however, complained of unpleasant effects from one-eighth of a grain of cocaine, faintness and nausea. The amount was reduced to one-sixteenth of a grain. This sufficed to render a sufficient area anæsthetic. The injection of antipyrin is made after three to five minutes.

Ether Hypodermatically for Asphyxia.—M. TESTEVIN reports brilliant results from the use of ether subcutaneously. He was called to see a woman, apparently moribund from charcoal fumes. Artificial respiration, flagellation, heat and cold had been used some time previous to his arrival with no success. Respiration had nearly ceased and the heart action was extremely feeble; having no electrical apparatus, he injected ether. The patient made a good recovery, although for six months after there was noticeable a weakening of the memory.—*L'Abeille Médicale*, August 6, 1888.

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SATURDAY, SEPTEMBER 1, 1888.

CREOLIN.

SUBSTANCES used as antiseptic or germicidal remedies are not only open to more exact estimation of their powers, but their effects are more evident and less dependent on subjective interpretations than any other remedial agents. For these reasons fluctuations of opinion concerning them are slow, and newly discovered members of the class do not so quickly take a prominent part in practice as do, for example, antipyretics.

These ideas arise in connection with the new antiseptic creolin, which had been in use as a disinfectant for some time before Esmarch, about one year ago, made an experimental study of it, but it had never before attracted any attention as a possible addition to the list of antiseptics. Up to that time carbolic acid, bichloride of mercury and iodoform had become firmly settled as routine antiseptics, though all had their drawbacks, and the introduction of a new one must have been difficult. Soon after the publication of Esmarch's investigations (*Centralb. f. Bact.*, etc., Bd. II., Nos. 10 and 11) followed by those of Fröhner (*Arch. f. wiss. u. prakt. Thierhkde.*, 1887), a number of independent observers took up the practical study of the drug, so that we are now in a position to come to some conclusion with regard to it.

Creolin is a product of the dry distillation of certain kinds of English coal. It occurs as a dark brown, syrupy fluid, having a strong tarry odor. It mixes in all proportions with water, oil and glycerin, and is soluble in alcohol. The watery mixtures have at first a milk-white color, but on standing a finely flocculent precipitate separates and the mixture assumes a brown color. Creolin is a "secret" preparation, and is, moreover, a mixture and not a definite chemical compound, and Liebreich has very properly called attention to the fact that under the circumstances the makers can alter its composition as they see fit. However, Fischer's investigations (*Phar. Zeitung*, 1887, 103) go to prove that at present creolin has a pretty constant composition. He found in it, in addition to a number of other coal-tar bases, eighteen per cent. of naphthalin. He could find no trace of carbolic acid, though it has been alleged that carbolate of sodium is one of the principal ingredients.

Esmarch has found that in antiseptic power creolin is equal to carbolic acid, and that soap made with it is more powerful than the common 1 : 1000 corrosive sublimate soap. The absence of toxic properties in creolin was shown by Fröhner, who fed it to dogs, in quantities of nearly two ounces, without producing symptoms of intoxication. Eisenberg (*Wiener med. Woch.*, 1888, Nos. 17, 18, 19) instituted a series of experiments, comparing creolin with carbolic acid and corrosive sublimate, and came to conclusions identical with those of Esmarch and Fröhner. Creolin gauze proved to remain aseptic for months, giving it a great advantage over iodoform.

These theoretical investigations brought out a number of communications, giving the results of clinical experiment and generally extolling the new remedy in high terms. The greatest amount of testimony is in regard to septic and purulent conditions and the treatment of accidental and operative wounds. In such cases Kortüm (*Berlin. klin. Woch.*, 1887, No. 46) sums up the advantages of creolin in these cases as uniting the beneficial properties of iodoform and bichloride, without their intoxicating power. As this observer states it, "Creolin is not poisonous, is disinfecting, limits secretion, encourages granulation and is to a certain degree hæmostatic." This opinion is concurred in by Neudörfer (MED. NEWS, 1888, vol. i. p. 210), who reports great success in erysipelas by applying solutions of creolin to the inflamed areas. Kortüm also used creolin in gynecological practice, and in the form of tampons saturated with a two per cent. solution had favorable results in cases of severe atony of the uterus.

A great number of observations have been published, showing the safe and prompt action of creolin in cases of inflammation of the genito-urinary tract, from mild urethritis to purulent cystitis. In these cases, however, the opacity of the solution is a great drawback to its continued use. For this reason its application will have to be limited to the early days of treatment, as suggested by Hiller (*Deutsche med. Woch.*, No. 27, 1888). The latter used creolin extensively in the treatment of empyema, and found it superior to all other antiseptics for that purpose. In consequence of the disadvantage named, he used creolin only in the first few days after operation, and, when the disinfectant action had been secured, returned to thymol and boric acid solutions. He afterward applied the treatment to disease of the bladder, on the recommendation of Jessner (*Deut. med. Zeitg.*, 1887, No. 102), and found it more efficient than all others, though at the same time no more irritating than 1 : 500 thymol solutions.

In various inflammatory and suppurative diseases of the conjunctiva, Amon (*Münch. med. Woch.*, No. 26, 1888) and Purtscher (*Ctlb. f. prakt. Augenhkde*, März, 1888) report the successful use of creolin solutions of a dilution of one to four in a thousand.

The internal administration of creolin has already been quite extensive. Amon, who has used it for some months, internally and by inhalation, in pulmonary tuberculosis and simple inflammatory affections of the lung with more or less secretion, gives it a high place among remedies for these common diseases. Beginning with a one-half per cent. solution and increasing to two per cent., creolin is easily inhaled. Expectoration is favored and secretion decreases rapidly under its application. In two cases of incipient phthisis the local signs disappeared on giving creolin. Amon believes that creolin is destined to take an important rank in the prophylaxis and therapy of infectious diseases.

Equally favorable are the results of creolin in diseases of the alimentary canal. Amon tried it in some mild cases of diphtheria with success. Hiller would lead us to believe that it is almost a specific for all intestinal affections. Among the conditions to which he has applied it are meteorism, typhlitis, intestinal catarrh, atony with constipation and especially typhoid fever. In all diseases of the stomach and intestine, accompanied by excessive putrefaction, creolin, according to this observer, is the best remedy, excelling naphthalin, creasote, thymol, calomel and all others. He gives creolin in doses of five to fifteen grains, usually three times a day and one hour after meals.

On account of the tarry odor of creolin it must be given in thick gelatine capsules, without any addition. A slight sense of warmth in the stomach and mild taste of creolin in the mouth were the only effects perceived by patients even when taking as much as four drachms within four days. The urine is not affected by the internal administration of creolin. On the strength of his experience Hiller advises the use of creolin in dysentery, cholera morbus or even cholera asiatica. On account of the necessity for giving the drug in capsules, it cannot be used in the treatment of infants.

Making allowance for the enthusiasm common to all early investigations with new drugs, it would seem that in creolin we have a remedy of positive value. It is difficult to reconcile our knowledge of antiseptic agents with the universal testimony as to the non-intoxicating nature of creolin, and if it is true, as Hiller suggests, that this is simply due to the physical condition in which it is exhibited (*i. e.*, in emulsion, the drops of which are absorbed with difficulty), it would be interesting to know how this is brought about, and what new product, or combination of known products of coal-tar gives rise to such a beneficent remedy.

LIKE AN ALARM OF FIRE.

The head of the Health Department of New York City has some very clear notions in regard to the great need for alertness in the management of infectious diseases. He has had occasion lately to write officially as to the imminence of yellow fever. From his letter we quote a paragraph which shows its author's confidence that his department is thoroughly equipped and disciplined. After remarking that yellow fever is not to be dreaded this year at our northern cities, he says, "If the fever should occur, however, it would be in isolated cases, with which we are prepared to deal so promptly and effectually that it will have no chance to spread. The machinery of the contagious diseases division of this department is in such condition that it can be set in motion at a moment's notice, and I am confident that the response of this department to a notice of known or suspected disease of a dangerous character would be *like that of the fire department to an alarm*. With special reference to yellow fever, we have a medical inspector constantly on duty at our headquarters. Within

five minutes after receiving a report he would be on his way to inspect it, within thirty minutes we should have his report, and immediately an ambulance and the disinfector's wagon would be despatched to the place. In an hour we should have the patient on his way to the hospital at North Brother Island."

When we reflect how much panic and harm often arise from a lack of preparation for such visitations, it is very gratifying and reassuring to read that a health official compares the readiness and discipline of his department with those of the model fire departments of our large cities, where everything is in motion at the touch of a bell.

Professor von Esmarch, of the University of Kiel, accompanied by his wife, the Princess Henrietta, of Schleswig-Holstein, and their son, Dr. Ervin von Esmarch, arrived in this country last week to attend the Congress of American Physicians and Surgeons at Washington. Last Tuesday evening the Germans in New York entertained the distinguished party at Terrace Garden. In the reception room the Schleswig-Holstein arms were conspicuously displayed with the German and American colors. There was an address of welcome to which Professor von Esmarch replied, and the Princess was presented with a bouquet. The Princess, who is an aunt of the present Emperor of Germany, upon withdrawing, handed to the Committee 1200 marks to be distributed among the Schleswig-Holstein poor of New York.

The Seventh International Congress of Ophthalmology was held at Heidelberg on August 8th to 11th. Among the Americans present were Drs. Knapp, of New York, Hasket Derby, of Boston, Harlan and Randall, of Philadelphia, and Kipp, of Newark. Professor Donders was elected President. There were also elected a number of foreign Honorary Presidents, including Drs. Hasket Derby and Knapp, on behalf of America.

A professorship of ophthalmology has been established at Copenhagen—the first in Denmark—and Dr. Edmund Hansen Grut has been elected to the chair. Grut has raised the department of ophthalmology in Denmark to an independent study, it having formerly been but a branch of surgery. All the recent Danish ophthalmologists have been students of Grut's, he having established the first eye clinic in 1863. Grut was born in 1831 and began his professional career in 1854. He has taught ophthalmology in the high school of Copenhagen since 1863.

Van Ermengen has been made Professor of Hygiene and Bacteriology at the University of Ghent.

Dr. F. Bramann, First Assistant of the Royal Surgical Clinic at the University of Berlin, in recognition of his thesis upon "Myotomy and Tenotomy, Now and in Pre-antiseptic Times," has been made a privat docent in the medical faculty of the University.

Dr. Thomas Taunton Sabine died at New York City, August 23d, aged forty-seven years. He was a prominent surgeon, and was connected with Bellevue, St. Mary's and other hospitals, but he is best known as the Professor of Anatomy at the College of Physicians and Surgeons, to which chair he was promoted in 1879, following Dr. Sands in that position, when the latter became Professor of Surgery.

Dr. Lewis Drake died at Rahway, New Jersey, on August 17th, at the ripe age of eighty-six years. For nearly sixty years he had been a leader in medicine and in public affairs. He graduated from the University of Pennsylvania in 1829.

SOCIETY PROCEEDINGS.

CONGRESS ON TUBERCULOSIS OF MAN AND ANIMALS.

Held in Paris, July 25 to 31, 1888.

July 30th—Morning Session.

(*Specially reported for* The Medical News.)

(Continued from page 220)

Third Question: Modes of Introduction and Propagation of the Tubercular Virus in the Economy. Prophylactic Measures.

Inoculation of tuberculosis by the finger.

M. Tscherning, of Copenhagen, having, some years ago, observed the inoculation of tuberculosis by the finger, performed amputation of the finger and excision of the axillary glands; histological examination showed that these glands were involved. The patient was cured. He knew of another case, a veterinarian, who was accidentally inoculated during an autopsy; his finger became involved, the parts were excised and tubercle bacilli were found, but no other lesions of the different organs.

M. Torkomian, of Scutari, was accidentally wounded during the autopsy of a tubercular patient; he developed a paronychia with axillary adenitis; but he has noticed no more accidents since, which proves that man can resist the penetration and generalization of the tubercle bacillus under certain conditions.

M. Verneuil mentioned the fact of his making the

post-mortem of a tuberculous patient with M. Maisonneuve. They were both wounded on the same day and neither of them developed the disease. Dissecting-room keepers are often affected with local tuberculosis without any fear of generalization; still, he has observed two cases of such affection producing in one a tuberculous cystitis, in the other a pleuritic and pulmonary tuberculosis.

M. CHAUVEAU also mentioned his observations. He had an anatomical tubercle for three months, and the fear of the fate of Laënnec, who died from such a lesion, made him experiment on calves, and see what effect a superficial wound, like the one of vaccination, would have. Out of five operations on calves, three had nothing, the other two presented local accidents. No general accidents were found when the post-mortem was made, a short time after. The inoculation by a superficial wound is possible, but it is not an easy method of pentration of the tubercle bacillus.

M. VILLEMIN remarked that Koch observed that the bacillus only developed in an immovable tissue; hence the movements and rubbing of the integuments are not favorable to the development of the microbe.

RESEARCHES ON THE GENERALIZATION OF EXPERIMENTAL TUBERCULOSIS.

M. JEANNEL, of Toulouse, endeavored to ascertain how long tuberculosis would remain local. He found that if an extremity is amputated twenty-four hours after an inoculation, the animal will certainly die of tubercular disease. An adenitis consecutive to tuberculosis by subcutaneous inoculation is virulent from the fifth to the seventh day. The virus passes the first chain of glands before the fourth day. The blood of a rabbit inoculated by subcutaneous grafting behaves like a virulent dilution on or before the second day. We can safely say that tuberculosis is generalized over the whole organism before its existence is manifested by visceral localization.

M. ARLOING also admitted the penetration of the bacilli into the blood and their rapid dissemination; but for tuberculosis to manifest itself in multiple places, it must find places suited to its development; and for this the penetration of microbes alone is not sufficient, the field must be prepared by the secretion of a solid matter.

ON THE RESISTANCE OF HENS TO TUBERCULOSIS BY INGESTION.

MM. STRAUSS and WURTZ, of Paris, from their experiments, showed that the gallinaceæ can be submitted to the prolonged ingestion of enormous quantities of tubercular matter without presenting any tubercular lesions; but from this we must not conclude that the introduction of tuberculosis by the intestinal canal of hens is impossible. The localization of tubercular lesions in gallinaceæ, to the digestive tract and its surroundings renders this contagion probable, but certain unknown conditions are necessary. The conclusion is that gallinaceæ are extremely refractory to tuberculosis by ingestion.

ON THE ACTION OF GASTRIC JUICE ON THE TUBERCLE BACILLUS.

MM. STRAUSS and WURTZ also referred to the experiments of MM. Chauveau, Gerlach, Klebs, Toussaint, etc., who have shown that tuberculosis can be communicated by the ingestion of tubercular matter; hence one might conclude that the gastric juice was unable to destroy the virulence of tuberculosis. M. Wisener, who made experiments on that ground, did not take the necessary precautions. He used artificial gastric juice (pepsin and hydrochloric acid) in which he placed for digestion fragments of tubercular organs, which were then inserted in the peritoneum of rabbits.

They had operated on pure cultures of tubercle bacilli, with the natural gastric juice obtained from a young dog which had had a gastric fistula for a long time. This gastric juice was very active and digested perfectly well cooked white of egg. The cultures used were made on glycerized gelatine of six weeks or two months old; the bacilli were rich in spores. They proceeded as follows: in little flasks containing one cubic centimetre of fresh gastric juice, they placed a piece of platinum wire from the tubercular culture, then these flasks were placed in a heat chamber kept at a temperature of 110° F. for variable periods, some one hour, others two, three, four, five, six, twenty-four, and forty-eight hours; after that time, about seven or eight drops of the contents of the flasks were inoculated with the hypodermic syringe in the peritoneum or subcutaneous cellular tissue of rabbits or guinea-pigs. These animals were killed at the end of thirty to forty days. At the autopsy, they found that all the animals which had received cultures, which had remained in the gastric juice for one, two, three, four, five, and six hours became tuberculous. Those that had been inoculated in the peritoneum presented a general tuberculosis of the peritoneum, liver, spleen, lungs. Those that had been inoculated subcutaneously presented a caseous abscess, rich in tubercle bacilli; while all the animals that were inoculated with tubercular cultures; which had been in contact with the gastric juice for twenty-four or forty-eight hours, remained perfectly healthy.

These experiments show that the sporulated bacilli of tuberculosis resist the action of the gastric juice of the dog for at least six hours, at the body temperature, without losing in any way their virulence. This virulence is absolutely destroyed in twenty-four hours by this same gastric juice.

In those experiments in which the pure gastric juice acts directly on a pure culture, the action of this juice must be stronger than if it acted on tubercular matters introduced into the stomach; in such cases the bacilli are imbedded in the tissues (meat, viscera) and in part protected by them. In addition, the gastric juice is diluted by the food and liquids taken, and the food rarely remains six hours in the stomach: hence we must not think that the gastric juice in man will at all protect him against tuberculosis.

FIRST CHILDHOOD AS AN ORGANIC MEDIUM IN ITS RELATION TO TUBERCULOSIS.

M. LANDOUZY, of Paris, said that tuberculosis shows or presents a variety of forms, according to the ground on which it develops at the different ages of man. One of the most interesting of these stages to consider is certainly the one starting at birth until the age of two years. In the baby, as had been already shown, tuberculosis has a greater tendency in its clinical and anatomico-pathological manifestations, to be a general disease rather than a local one; this we have had the opportu-

nity to witness, on many post-mortems, where the lesions could not explain the death, which we had to attribute to the fever.

In broncho-pneumonia of babies terminating fatally Koch's bacillus is always found; but at the autopsy we find that the disease has not gone beyond the pregranular stage. In most of these babies, measles has been the starting cause of the disease, which had been latent up to then, and he thinks that most of these measles the broncho-pneumonia ought to be ascribed to the action of tuberculosis instead of measles.

He thinks that babies are more amenable to treatment than at a later period; and especially by feeding we are able to neutralize this tendency to tuberculosis; but only boiled milk must be used. Not only does tuberculosis penetrate by the digestive tract, but also through the skin and the lungs; heredity is also a large factor; a child will be born tuberculized as another is born syphilized.

Tuberculosis in children is extremely common; in his wards he has found in fifty autopsies, one death out of three due to tuberculosis; MM. Hayem and Damaschino have obtained the same result. His conclusion is that hygiene must insist on the promulgation of laws that will regulate the feeding and hygiene of the child, and the physician himself must not give up a child because he suspects hereditary tuberculosis.

EXPERIMENTAL DIAGNOSIS OF TUBERCULOSIS.

M. VERNEUIL said that this experimental diagnosis is probably more important and more certain than searching for the tubercle bacillus with scrofulo-tuberculosis products; two or three guinea-pigs are all that is necessary, and a few sterilized Pasteur's tubes. The inoculation is made, and ten to twelve days later, when the animal even does not appear diseased, he is killed, and if the matters inoculated were tuberculous, we shall find on the peritoneum a confluent eruption of tubercles, with an extension of the disease to the spleen and liver.

M. CLADO said that tuberculosis is only visible to the microscope on the tenth day, and is well seen macroscopically on the fifteenth; the spleen, it is to be observed, presents tubercles in its interior, not on its surface. This method will also enable us to know when a tubercular abscess treated by injections of ether iodoformized ceases to contain virulent pus.

M. NOCARD said that the method recommended by MM. Verneuil and Clado can be used in veterinary medicine; but the bacteriological examination must also always be made. When we want to know the origin of substances that were in contact with the air, it is to be preferred that inoculation should be made under the skin; for outside microbes injected in the peritoneum might produce death before the experiment is completed; under the skin they produce an abscess which will discharge, but the local tuberculosis will remain; we can even detect the bacillus in the discharges coming from the suppuration of the abscess.

TUBERCULOSIS OF THE THYMUS GLAND.

Dr. A. JACOBI, of New York, read a paper on this subject; he considers this lesion to be of more frequent occurrence than is usually thought; taking the form of caseous inflammation of granular tuberculosis or again arterial tubercular lesions; when compared to the visceral tuberculosis of children, one must remember that tuberculosis of the thymus is not rare. The tubercle bacillus is found in the majority of cases.

EVENING SESSION.

MANNER OF CONTAGION OF TUBERCULOSIS BY THE DIGESTIVE TRACT.

M. BUTEL, of Meaux, claimed that tuberculosis is more often transmitted by the digestive tract than by the respiratory, and it has been proven to-day that other infectious diseases, such as typhus and malignant carbuncle, are more often produced by stomach ingestion than by any other. Vaccination of these diseases is, in fact, more certain than intravascular inoculation.

As regards tuberculosis, Jeannel has seen that the tubercular virus can penetrate the digestive tract without leaving any trace of its entrance point and yet produce pulmonary specific lesions. The tubercular virus chooses for itself a favorable part in which to develop without it being necessary that the virus should have been introduced there directly.

M. TRASBOT has observed the contamination of healthy guinea-pigs by tubercular ones which were living with them, through the digestive tract, the spleen and liver being particularly involved.

HOSPITAL HYGIENE OF TUBERCULAR PATIENTS.

M. GIORGIERI, of Florence, said that any city which does not contain special hospitals for tubercular or consumptive patients, ought to place them in well-ventilated separate buildings. The wards for these patients ought to be regularly disinfected, as well as the linen, clothing, spittoons, etc. As nurses to these patients, we ought to allow only strong, vigorous persons over thirty, who run very little danger from contagion.

TUBERCULOSIS OF THE BONES OF THE FACE.

M. LE DENTU, of Paris, observed in a man of thirty-two a primitive tuberculosis of the superior maxillary; it was first thought to be syphilitic, but specific treatment had no influence whatever. He had on the left side several suppurating fistulæ from the maxillary, and also an uneven palatine ulceration, also a suppuration of the ear and scrofulous cicatrices on the neck; he was treated with good results by the glycerole of iodoform 1 to 5.

PATERNAL TUBERCULAR HEREDITY.

M. LANDOUZY, of Paris, out of four children who died from tuberculosis, searched to ascertain whether this could be due to respiratory contamination; but the children had been separated from the father, who alone was tuberculous, the mother being well, hence this mode of contagion could not be considered. He admits the direct contagion by spermatozoa, for he has seen a woman who remained perfectly healthy give birth to a tubercular child and then have several abortions. The only explanation for these facts is the infection of the ovule by the spermatozoa.

ALIMENTARY ORIGIN OF INFANTILE TUBERCULOSIS.

M. LEGROUX, of Paris, said that cow's milk is certainly one of the most frequent ways of introduction of bacilli into the alimentary tract of children. When they have penetrated they either remain localized or generalize; the lymphatic organs agglomerate them and from

these are distributed all over the organism. They may remain latent or appear on the first occasion. On studying the point of entrance of tuberculosis in children, he has often concluded that the digestive tract was the only way, cow's milk having been given raw, without boiling; hence, let us not forget the danger of drinking raw milk. He thinks that tuberculosis can be produced by raw milk, even if the cow has a healthy appearance; and that the milk of the goat, mare, or ass is less dangerous than cow's milk.

M. Thomassen, of the Hague, said that, in Holland, veterinarians visit regularly the cows that furnish milk. If a cow is diseased, the farmer is requested to get rid of it, and the milk which is found good is sent to the city in sealed bottles.

M. Legroux asked that a commission of hygiene be formed in France, to examine milch cows, and forbid the sale of dangerous milk.

M. Landouzy asked whether veterinarians are certain of making an early diagnosis; if not, it would be more certain to recommend boiling the milk.

M. Trasbot recommended boiling the milk as the only certainty, for tuberculosis cannot be always recognized. He mentioned the fact that an ox which obtained the first prize at an exhibition was found tuberculous.

M. Nocard recommended goat's milk, if raw milk is desired, for this animal is very rarely tubercular.

M. Legroux proposed the establishment in Paris, of goat and ass stables, where such milk could be had.

M. Trasbot remarked that goat and ass's milk is very expensive, and cow's milk would be used anyhow. Hence, boiling must be insisted upon.

SEVERAL OPERATIVE INTERFERENCES ON TUBERCULOUS PATIENTS.

M. Richelot, of Paris, presented the history of a man of eighteen, who, in 1884, had a salivary fistula from Steno's duct, resulting from an abscess. He was cured eventually. In 1885, he had an enormous ganglionic swelling of the neck on the right side; all the glands were dissected out and the parts scraped, at the same time suppuration of the middle ear appeared. In December, 1885, the neck was cured, but a white swelling of the elbow made its appearance and increased rapidly. In April, 1886, the elbow was excised without complication, two suppurating cavities remained. In September, these were incised and scraped. In November, resection of a large piece of the ulna was done. In September, 1887, fistulous tracts were opened and scraped, cicatrization having taken place in November. The patient is doing very well, he has increased in weight and all lung manifestations have disappeared (in April, 1886, he had blood-streaked sputa, and physical signs at the apex of both lungs). To-day the patient appears perfectly cured.

This observation is remarkable as regards the length of the evolution of the disease, an attempt at lung involvement, without a real generalization of the disease, and the final successful result of operative interference. In rare cases such intervention will accelerate the course of the disease, auto-inoculation being produced.

ON THE CURE OF ANATOMICAL TUBERCLE BY THE THERMO-CAUTERY.

M. Barthelmey, of Paris, since 1882, has treated anatomical tubercle by the application of the point of the thermo-cautery, with numerous punctures penetrating to the depth of two millimetres, and extending one millimetre beyond the diseased spot, He has obtained very good results. He thinks, like Prof. Cornil, that this disease is due to the introduction of more than one microbe under the skin; it is usually a local cutaneous tuberculosis, but not always so. The cases he has followed have never presented visceral complications; they differ from lupus, which has given rise, on several occasions, to general tuberculosis. They also differ from primitive subcutaneous tubercular abscesses, which are always followed by a general tuberculosis, when operated upon.

Not only does this lesion present itself in the dissecting room, but he has seen it in a sister of charity who had dressed a cold abscess of the axilla; this tubercular process was three years old; he destroyed it in five sittings, one every five days. On one of his students, three sittings destroyed an anatomical tubercle of four years' standing. In twelve days he cured a tubercle of seven years' standing, and in five weeks one of nine years. As a dressing, a boracic ointment is all that is required.

ON THE CAUSE OF PAIN IN THE AMPUTATED STUMPS OF TUBERCULAR PATIENTS.

M. Guinard, of Paris, said that we often hear persons complain of pain in the extremity which has been amputated. Their pains become less frequent if we take the precaution to excise the extremities of the nerves as high up as possible. He had observed two cases in which the pain of the stump was due to tubercular lesions, situated far from the citatrix and compressing the nerves of the region. In the first case, he found a deep abscess of the iliac fossa which pressed on the nerve of the sacral plexus, and produced pain which was located in the region of the foot. The abscess was cured in fifteen days, by two injections of etherized iodoform, the pain disappearing as the abscess receded. In a second case the pain was due to a ganglionic mass in the iliac fossa, which had not suppurated, and was treated locally with good results as regards the disappearance of the pain.

Whenever a tubercular patient presents himself with pain in his stump, he looks for tubercular lesions along the course of the affected nerve; if these lesions are removed the local pain will disappear.

SURGICAL THERAPEUSIS APPLIED TO TUBERCULAR LESIONS.

M. Barette, of Paris, recommended, a week before operating, to make an injection of etherized iodoform, which will prevent the formation of pus, and keep the wall of the abscess clean for the time of operating.

CORRESPONDENCE.

OBSCURE CASE OF ABSCESS OF THE LIVER.

To the Editor of The Medical News,

Sir: The "Case of Abscess of the Liver," without the usual symptoms, which is reported by Dr. Dawson, of Charleston, S. C., in The News of August 11th, prompts me to mention briefly a somewhat similar case—similar, because of the absence of local signs.

Some twenty years since C. A., sent for me to attend him for malarial fever, as he had but recently returned from Tennessee, where he had resided for some months. I found the patient with a soft, rapid pulse, moist skin, temperature 101° and a report of "frequent chills." A diagnosis of malarial fever was made, a "blue" pill of five grains was given, followed by a Seidlitz powder, after which quinine was ordered, to anticipate the expected chill. It came, with a series of others, without any regularity, nor were they in any manner amenable to the quinine.

Rejecting my first diagnosis, suspecting septicæmia or pyæmia, as did Dr. Dawson, I instituted a searching and vigorous inquiry as to any local injury. I could find nothing, nor could I elicit any history of injury, although I repeatedly inquired. He presented no symptoms of local value, save occasional loose, clay-colored stools, the fetor of which was quite noticeable.

The case went on for some two weeks without much alteration, the patient growing weaker, more somnolent, with muttering delirium; the temperature fluctuating from 100° A.M. to 102° P.M., until death.

From the lack of salient points of any local trouble, excepting, of course, the "stools," for there was no enlargement of the liver, or jaundice, and taking into consideration the chills, I ventured to make a diagnosis of "abscess," location not known.

Assisted by a brother physician, to whom I made known my opinion of the cause of death, I made an autopsy, which revealed more than twenty distinct deposits of pus in the liver. The spleen was healthy but enlarged; the lungs were not examined. Kidneys normal, as was to be expected, since there was nothing evidenced by an examination of the urine during his sickness to implicate these organs.

Subsequently, I learned from his partner that while carrying one end of a counter he was struck in the "stomach" by one corner, and was obliged to sit down and rest for a moment. This was two or three days before his taking to the house. Had I known this during his illness much worry and speculation might have been avoided.

RALPH C. HUSE, M.D.

GEORGETOWN, MASS., August 13, 1888.

THE DINNER TO THE FOREIGN GUESTS OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

To the Editor of THE MEDICAL NEWS,

SIR: Some complaints having reached the Committee in regard to the distribution of invitations to the dinner to be given to the foreign guests of the Congress of Physicians and Surgeons, to be held in this city next month, I must beg the use of your columns to say that this distribution was in my hands.

The Council of the Congress having expressed themselves as averse to any elaborate entertainment on the part of the Congress, it may be said in the first place that this dinner is *unofficial* and is in the hands of the *members* of the Committee and not of the Committee.

As it was necessary, after the matter was decided upon, to act quickly in order that proper invitations might be sent to Europe and answered in time, it was not possible to arrange this distribution so methodically as might have been done had the time been longer.

It was intended that every member of the Congress—that is, every member of any of the constituent associations, should have an opportunity to subscribe.

Some circulars were sent directly by me and some of them by such representatives of the associations as I could most readily get at. It is possible that there may have been accidental omissions, and it is more than possible that at this season, when so many gentlemen are absent from home, some invitations have gone astray; another possibility, which we know to have been in some cases an absolute fact, is that circulars have been placed in the waste-paper basket.

This note is intended as an invitation to every member of all the associations composing the Congress of American Physicians and Surgeons, who wishes to do so, to send his subscription of twenty dollars to Dr. S. C. Busey, 1545 I St. (N. W.), Washington, D. C., for a dinner to be given at Willard's Hotel, in this city, on Monday, September 17th, at 7.30 P. M.

I am very respectfully,

ROBERT T. EDES.

WASHINGTON, August 21, 1888.

NEW INVENTIONS.

A NEW INTRA-UTERINE ELECTRODE FOR USE IN THE APOSTOLI OPERATION.

BY G. BETTON MASSEY, M.D.,
OF PHILADELPHIA

AFTER many experiments with different forms of electrodes for the application of powerful currents to the interior of the uterus, I have finally settled on the form shown in the cut, which I think is an improvement on those employed by Apostoli and other operators.

The Apostoli instrument consists of a sound, sliding within an insulating cover of hard rubber or celluloid (the latter material being preferred by him) and capable of being fixed solidly in the handle with any desired exposure of the end. The disadvantages of this method of insulation are:

(1) The impossibility of covering part of the curved portions of the sound by the unyielding cover when we wish to protect the neck of the uterus from cauterization. It is possible that the cases of atresia that Apostoli admits have occasionally followed his negative cauterizations were due to unnecessary action in this situation, as it is an accident that has never occurred to me since I have been in the habit of protecting the cervix. This protection of the cervix and concentration of the current action upon the interior of the corpus alone is impossible if the sheath is made of rigid material, and were it possible, the abrupt increase of calibre at the end of the cover would render the proper insertion of the sound impossible in many cases.

(2) The inflammable nature of a hard rubber or celluloid cover renders a cleansing by the alcohol flame impossible, and as its calibre is small, other means of sterilizing it are more or less unreliable.

The device that has successfully obviated these difficulties in my hands is simply the fusing upon the electrode, after it has been properly bent, a sufficient quantity of pure gum shellac. This makes a perfectly homogeneous instrument, the highly insulating material adhering firmly to the metal and presenting a smooth, hard

surface. It is accomplished by heating the sound over an alcohol lamp until all septic material has been incinerated. It is then hot enough to take the coating of gum from a solid piece held in the hand. The first coating is too thin and should be added to by fusing more shellac and dropping it upon it, and the whole is then brought to a uniform thickness by a gentle reheating over the flame. This leaves a smooth, highly insulating covering, that adheres tightly to the sound and shades off in thickness at the bare end so gradually as readily to admit its passage wherever desired.

Before each subsequent operation this electrode may be thoroughly sterilized and any accidental breaks closed by a reheating of the end in the alcohol flame and a fusing of at least two or three inches of the cover. Before the reheating the proper depth of exposure of the end should be determined upon and the necessary curve imparted to it.

This coating is only adapted to the rigid-shanked Simpson pattern, as shown in the accompanying cut, as after the parts are once covered there should be no danger of bending, which would give rise to unpleasant leaks, the material being quite brittle.

As to the electrode itself, it is sufficient to say that the first two and a half inches at the point are of platinum, to adapt it for use with the positive pole. The flat handle of hard rubber, which seems to have been overlooked by electrode-makers heretofore, fulfils the same important functions as in ordinary sounds.

I have used as much as 400 milliampères repeatedly with this form of electrode without the cover being affected in any way, but its brittleness would doubtless render it an unsafe covering for the electro-puncture needle.

1706 Walnut St.

NEWS ITEMS.

The Yellow Fever Quarantine.—Surgeon-General Hamilton, with the approval of the Secretary of the Treasury, to-day issued a circular promulgating the following regulations for the prevention of the spread of yellow fever from certain infected places in the State of Florida:

In accordance with the act of April 29, 1878, and appropriation acts, authorizing the maintenance of quarantine at points of danger, the following regulations are framed to assist in the work of preventing the spread of yellow fever, now prevailing as an epidemic in certain towns in the State of Florida:

1. A camp of refuge for persons from infected places in Florida is hereby established, to be under the command of Passed Assistant Surgeon Guitéras, on the south bank of St. Mary's River, near the crossing of the Savannah, Florida and Western Railroad, to be known as Camp Perry. Temporary quarantine stations are hereby established, under the direction of Surgeon Hutton, Marine-Hospital Service, near Waycross, Ga., and Live Oak, Florida. Those at Dupont, Georgia, and Chattahoochee River Junction are hereby discontinued.

2. At the station aforesaid an inspection will be made of all persons, baggage, mail and express arriving by rail from points south, and in case of arrival of any person, mail, baggage or express matter capable of conveying infection, coming from an infected place or a place not known to be healthy, as shown by recent inspection reports, then such person shall either be returned to the original place of embarkation or to Camp Perry, at his or her option, and the baggage of such person shall be held for fumigation, and fumigated under the direction of the Railway Mail Service, under orders already issued by that service.

3. All persons arriving at Camp Perry will be under the orders of the commanding officer, and will not depart the camp, without permission, until ten days shall have elapsed from the date of their departure from an infected place. A special daily train will run between Jacksonville and Camp Perry for the purpose of conveying persons from Jacksonville, and such other business as may be incident thereto; and, at the expiration of the detention period, they will be taken to Waycross and then allowed to proceed to their destination without further detention.

4. Railway agents, conductors or other persons in charge of railway trains south of and including those of the Savannah, Florida and Western Railroad will not receive persons from infected places on board trains, except to the refuge camp, as provided in paragraph 1 of this circular, and sleeping cars will not be allowed to proceed south of Waycross, Ga., until the cessation of the epidemic.

An additional refuge camp, under the same regulations as those governing Camp Perry, will be established in the mountains of North Carolina (the site hereafter to be determined) as soon as practicable.

The Congress of American Physicians and Surgeons.—In view of the fact that frequent inquiries are made of the Committee of Arrangements by medical men and others in regard to the character of the organization now known as The Congress of American Physicians and Surgeons, which will hold its first triennial session in Washington, September 18, 19 and 20, it is deemed proper to state that several years ago the American Surgical Association passed a series of resolutions declaring it expedient that the special medical societies in this country should adopt some plan of organization by which they should be brought together at certain stated periods, and invited the other societies to coöperate with it in perfecting such a scheme. This invitation was accepted by the several societies, and in October, 1887, a committee of conference, composed of delegates from each of the societies, assembled in Washington and agreed upon a plan of association, which was subsequently considered and accepted by the societies constituting the Congress as now organized. This plan consists simply of the agreement that the medical societies named shall hold their usual annual meetings at the same time in that city every third year, and that an executive committee, composed of one member of each society accepting the agreement, shall

arrange for one or more general meetings for the consideration of such medical subjects, by such physicians and surgeons as it may select, to be followed by such general discussion as time may permit. There is no membership in the Congress proper. Membership belongs exclusively to the several societies constituting the Congress. Each society prescribes its rules for admission of candidates, and transacts its business according to its own method. The Congress, as such, does not in any manner interfere with the autonomy of the several constituent societies.

The guests are men of distinction in some special department of medical science, who have been invited by some one of the constituent societies to attend its meetings, and perhaps to present a paper on some chosen subject. They are guests of a society, not of individual members.

The meetings of the Congress and of the societies will be open to the profession; but the privilege of taking part in the discussions will be limited to the members, guests and those who may be invited to do so by the societies respectively. The invitation to attend the meetings and engage in discussion will not, however, entitle one to the privileges of a guest.

Members and visitors must avail themselves of the ordinary excursion rates of railroad fare.

The Postmaster has arranged facilities for the distribution of the mail at the office of registration, in Willard's Hotel. Letters must be addressed to "The Congress of American Physicians and Surgeons, Washington, D.C."

It may be added, that the Committee of Arrangements decline to make any provision for, or to have anything to do with, any exhibit of pharmaceutical preparations and medical and surgical appliances.

The Progress of Surgery during the last Half Century was the title of Sir George Macleod's Address in Surgery at the late Glasgow meeting of the British Medical Association. The most distinguishing features of the period under review, he said, have undoubtedly been anæsthetics and antiseptics. They are both "epoch-making" discoveries. Each has done almost as much for surgery as the discovery of hæmostatics, and when combined may, he thought, be said to excel even steam and electricity in their gracious benefits to mankind. Though from the earliest times men sought for the means of allaying pain during operation, and numerous imperfect methods had been tried to effect it, yet the statements of Velpeau, published in 1839, may be taken as expressing the opinion held seventeen years before the great discovery—"All research for an agent to destroy pain in operations is a mere chimera and unworthy of further consideration." Suddenly, however, the riddle was solved by one who, recalling the experiments of Humphry Davy with nitrous oxide and sulphuric ether, dimly perceived the use they might be put to in surgery. Whatever credit in this matter may belong to the unfortunate Horace Wells, it was really Mr. Morton, who worked out the practical application of ether, and in the theatre of the Boston Hospital may still be seen the sponge by which it was administered on that memorable October morning in 1846. Many of us can still recall the enthusiasm which that discovery evoked, and the unbounded anticipations which it suggested.

Of antisepsis, he said, that notwithstanding all the criticism and opposition which it has met with, the fundamental principles on which it rests remain, in his humble opinion, unassailable, and that it has led to practical results (not alone in its immediate effects, but in the discussions and studies which it has produced) which have, in an extraordinary degree, widened the domain of our art, diminished the sufferings, and saved innumerable human beings.

The practical application of aseptic surgery has amazingly augmented the importance and value of the surgeon's services, as the advantages of that system cannot be secured without wide knowledge and great assiduity on his party. Perfect drainage; entire rest, both mechanical and physiological (which includes the avoidance of all tension in the wound), and such attention to hygienic and constitutional conditions as will maintain and increase the resistance of the tissues, and of the general system, to the invasion of disease, are essential to the "system" on which wounds are now treated, and demand the most assiduous care from the practitioner. Of the many germicides which have been used I undoubtedly prefer the bichloride of mercury, which, with the soft alembroth lint and Gamgee elastic absorbent wool, are most perfect local applications. Dry and elastic dressings (the many medicated and absorbent wools, cottons and lints now in use) have been, in my experience, most valuable advances in wound management. With reliable antiseptics—that is, agents which are capable of destroying the septic germs, or, at least, inhibiting their development, without, at the same time, causing local or constitutional harm—and with a scrupulous attention to details which must never flag, almost every organ and cavity of the human body may be, and have been, invaded, in some cases, perhaps, with too confident temerity.

Of the treatment of stone of the bladder, he said, for over fifty years lithotrity has been gaining ground, and since 1878, when Bigelow introduced his litholapaxy, the whole practice has been so changed as to constitute an entirely new operation. The greater capacity of the urethra which Otis demonstrated; the immensely greater tolerance of the bladder to the presence of instruments which Bigelow showed to exist; and the improvements in the apparatus for breaking up and removing the fragments, together with the use of anæsthetics, have all combined to establish the triumph which has undoubtedly been achieved. The extension to young boys (even to infants, as has been lately shown) of the advantages of lithotrity has also been attained, so that great size and extreme hardness are almost the only obstacles which now stand in the way of its universal application. With a better knowledge of the causes which produce calculus, an earlier recognition of its presence, and the modern system of removing it entirely at one sitting, it may be said that one of the greatest of human calamities has been nearly overcome.—*British Medical Journal*, August 11, 1888.

Re-implantation of Bone.—After his Address on the Surgery of the Brain (see THE MEDICAL NEWS of Aug. 18), at the recent meeting of the British Medical Association, Dr. Macewen gave a demonstration of cases so remarkable that it alone would suffice to render the Glasgow meeting memorable in the annals of surgery. Many of the patients whose cases have been described in the address were present, but the many eminent surgeons who attended were greatly interested also in the examples

of re-implantation of bone; the head cases afforded many instances, but the most remarkable was a boy, in whom the whole shaft of the humerus had been reformed from grafts, forming a useful link. The audience was large, and Dr. Macewen was loudly applauded and received numerous congratulations on his brilliant results. —*British Medical Journal*, August 11, 1888.

Entertainment of the Americans at the Meeting of the British Medical Association.—A number of British medical men, who visited the United States last year on the occasion of the International Medical Congress at Washington, performed a graceful act of courtesy and gratitude at Glasgow, last week, in the shape of a banquet to the American visitors to the Association meeting. The banquet took place at the Bungalow, in the Exhibition grounds, with Mr. Lennox Browne in the chair. Upward of fifty persons took part in the festival, comprising the majority of the Americans then residing in Glasgow.—*Medical Press*, Aug. 15, 1888.

Residential Buildings for Medical Students.—The medical staff of Guy's Hospital, with the consent and full assistance of the governors, have decided to build a residential college for the students. This will be erected on premises within the hospital precincts, on ground on which the first Nonconformist place of worship in London was situated. It is intended for the reception of sixty men, amongst which number will be included the resident staff of the hospital, the house surgeons, house physicians and others, who will be in telephonic communication with the hospital buildings. Every convenience will be provided and amongst other things a gymnasium will be included, for the use of the residents; this is as it should be. The building is calculated to cost £20,000, the whole of which has been already subscribed.—*Lancet*, July 28, 1888.

"Good Enough for the Hospitals."—A Spanish magistrate, shocked and exasperated by repeated food adulterations, has issued a proclamation, aflame with righteous wrath, that "all wines, groceries and provisions which, upon analysis, are proved to be injurious to health, will be confiscated forthwith and *distributed to the different charitable institutions.*"—*Boston Journal of Health*, Aug. 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 21 TO AUGUST 27, 1888.

VOLLUM, EDWARD P., *Lieuteant-Colonel and Surgeon* (U. S. Army).—Leave of absence extended two months.—Par. 17, *S. O. 192, A. G. O.*, August 20, 1888.

ALEXANDER, RICHARD H., *Lieutenant-Colonel and Surgeon.*—Detailed as a member of the Board to meet at San Carlos, Arizona Territory, August 28th, to select a site for a new post at that place.—Par. 1, *S. O. 44, Division of the Pacific*, August 15, 1888.

SMITH, JOSEPH R., *Medical Director and Surgeon, Department of Dakota.*—To inspect Forts Pembina, Totton, Buford, Abraham Lincoln and Yates, Dakota Territory.—Par. 4, *S. O. 77, Department of Dakota*, August 13, 1888.

HEGER, ANTHONY, *Surgeon* (U. S. Army).—In addition to his other duties, to attend to the duties of the Medical Director, Division of the Atlantic, during the absence of Colonel Charles Sutherland. —Par. 4, *S. O. 170, Division of the Atlantic*, August 18, 1888.

WRIGHT, JOSEPH P., *Major and Surgeon* (U. S. Army).—Detailed as a member of the Army Retiring Board, Fort Leavenworth, Kansas, vice A. A. Woodhull, Major and Surgeon, U. S. A., relieved.—Par. 10, *S. O. 190, A. G. O.*, August 17, 1888.

WOODHULL, A. A., *Major and Surgeon* (U. S. Army).—Relieved from duty with the Army Retiring Board, Fort Leavenworth, Kansas.—Par. 10, *S. O. 190, A. G. O.*, August 17, 1888.

AINSWORTH, FREDERICK C., *Captain and Assistant Surgeon* (U. S. Army).—To proceed to Atlanta, Georgia, and inspect the new Army Hospital at that place.—Par. 18, *S. O. 192, A. G. O.*, August 20, 1888.

MAUS, LOUIS M., *Captain and Assistant Surgeon* (U. S. Army). —Having completed rifle practice at Camp S. B. Luce, Fisher's Island, New York, to return to his proper station (Fort Schuyler, New York Harbor).—Par. 3, *S. O. 171, Division of the Atlantic*, August 20, 1888.

OWEN, W. O., Jr., *Captain and Assistant Surgeon* (U. S. Army, Fort Leavenworth).—To report for temporary duty to the Commanding Officer, Fort Gibson, Indian Territory.—Par. 1, *S. O. 104, Department of the Missouri*, August 20, 1888.

MASON, CHARLES F., *Assistant Surgeon* (U. S. Army).—Ordered to Fort Washakie, Wyoming Territory, for duty.—Par. 5, *S. O. 190, A. G. O.*, August 17, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING AUGUST 25, 1888.

SIMONS, MANLY H., *Surgeon*.—Detached from the "Constellation," and ordered to the Naval Academy.

RUSSELL, A. C. H., *Passed Assistant Surgeon.*—Detached from the "Constellation," and ordered to the Naval Academy.

DICKSON, S. H., *Passed Assistant Surgeon.*—Detached from the Marine Barracks, Washington, D. C., and ordered to the U. S. S. "Richmond."

CORDEIRO, F. J. B., *Passed Assistant Surgeon.*—Ordered to the U. S. S. "Mohican."

FARWELL, W. G., *Surgeon.*—Detached from the U. S. S. "Saratoga," and ordered home to wait orders.

DICKINSON, DWIGHT, *Surgeon.*—Detached from the U. S. S. "Portsmouth," and ordered home to wait orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING AUGUST 27, 1888.

SAWTELLE, H. W., *Surgeon.*—Directed to proceed to San Diego, Cal., and inspect Service at said station, August 17, 1888.

HUTTON, W. H. H., *Surgeon.*—To proceed to Way Cross, Ga., and assume charge of inspection and fumigation stations, August 17, 1888.

URQUHART, F. M., *Passed Assistant Surgeon.*—To report to Surgeon Hutton for special duty, August 19, 1888.

GEDDINGS, H. D., *Assistant Surgeon.*—Appointed an Assistant Surgeon August 18, 1888. To report to Surgeon Hutton for special duty, August 19, 1888.

WERTENBAKER, C. P., *Assistant Surgeon.*—Appointed an Assistant Surgeon August 18, 1888. Assigned to duty at the port of Norfolk, Va., August 20, 1888.

STONER, J. B., *Assistant Surgeon.*—To proceed to Charleston, S. C., for temporary duty, August 20, 1888.

GUITÉRAS, JOHN, *Passed Assistant Surgeon.*—To proceed to St. Mary's River, Fla., establish and take command of refuge camp at that point, the camp to be known as Camp Parry, August 20, 1888

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, SEPTEMBER 8, 1888. NO. 10.

ORIGINAL LECTURES.

ON THE DIAGNOSTIC VALUE OF FREQUENT MICTURITION.

A Clinical Lecture.

BY F. R. STURGIS, M.D.,

PROFESSOR OF VENEREAL AND GENITO-URINARY DISEASES IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; SURGEON TO THE CHARITY HOSPITAL, R. I. (VENEREAL DISEASES).

GENTLEMEN: One of the most important symptoms in the diagnosis of many genito-urinary affections is the frequency of micturition, which, it must be clearly borne in mind, is a symptom only and not a disease in itself. What I particularly wish to direct your attention to in this lecture is the importance of this symptom as a diagnostic sign. Speaking broadly, it may be due to diseases of the urethra and its appendages, to diseases of the bladder and of the kidneys; but first let us consider the bearing which it has upon diseases of the urethra.

In the first place, as regards gonorrhœa. During the early stage of this disease—that is to say, within the first few days of its duration—a not infrequent symptom, besides the slight discharge which ensues, is a desire to pass water frequently, a symptom which the surgeon may, perhaps, ascribe to some affection of the bladder, if his attention has not been called to the fact that this may be simply a reflex from irritation elsewhere, and not due to any disease of the bladder itself.

If frequency of micturition be due to disease of the bladder, it will probably come from some acute inflammation, and as such would be attended or accompanied by pus in the urine. In order to test this point the patient is made to pass his water and the sediment which forms is examined for pus. But it does not always follow that, because pus corpuscles are found in the urine, that necessarily the pus comes from the bladder; hence, if the water be passed all at once in one receptacle, it will be impossible to decide whether the pus comes from the urethra, or whether it comes from the bladder, or from both. This point can, however, be very easily determined in the following manner: Make the patient pass his urine in three separate glasses, one to represent the first third that is passed, the next the second third, and the rest the remaining third. If the pus come from the anterior portion of the urethra, it will be found in the first quantity that has been passed; if in the deeper part of the canal, sometimes in the first, but, for the most part, in the second; and if from the bladder, only in the last; and the reason for this is obvious. If the bladder be affected, the pus, being heavier than the urine, settles down to the lower and most dependent portion of the bladder, and the fluid which is first passed would be clear if the pus comes from the bladder; if, however, the first portion of urine passed contains pus, it comes from the anterior portion of the urethra, as that is the portion which is flushed by the first passage of urine. During the middle third of urination the deeper muscles of the urethra come more into play, and what pus there is is then dislodged from the urethra, by the water which is passed. In the latter third of micturition the deeper muscles and the sphincter muscles of the bladder press out the pus in the last portion of the urine which is passed, so that in that part any matter which is contained in the bladder as a result of inflammation would be seen.

Another source of frequent micturition is due to inflammation of the deeper part of the urethra, the membranous and prostatic portions, and, in cases of clap, as the disease extends the inflammation of the mucous membrane lining the deep and prostatic urethra produces a flow of pus similar to what takes place in the anterior portion during the earlier stage of the clap, and this, in rotation also gives rise to a frequent desire to void the urine, which usually comes in small amounts at a time. It is also accompanied by an inability to retain the water the moment the desire to micturate is felt. As the disease progresses and involves the neck of the bladder, these symptoms become still more aggravated, so that the desire to pass water in acute inflammation becomes almost incessant, and the ability to retain it becomes also less.

But, in addition to the acute catarrhal inflammation of these portions of the genito-urinary tract, there are other causes which play a part in producing this symptom, and one of the most frequent of these is the existence of a stricture, particularly of the variety known as "irritable stricture," seated anywhere in the canal. An irritable stricture seated near the meatus will oftentimes produce reflex irritation to such an extent as to lead to repeated attempts to evacuate the bladder. The next point is when the stricture is seated three and a half inches in the canal not far from the region of the bulb where the mucous membrane is very apt to be irritated, more so, perhaps even, than when the stricture is seated further back. In my experience strictures seated in the deeper part of the canal are not frequently attended by an irritable condition, and very seldom give rise to much trouble in frequency of micturition. Then, as we progress further back, the prostatic portion of the urethra and the neck of the bladder are very seldom the seat of any trouble, apart from acute inflammatory affections, which would induce this condition of affairs. But the prostate itself may be the cause of this symptom from hypertrophic enlargement or the formation of an abscess. In young adults hypertrophy of the prostate as an idiopathic affection is extremely rare, and if this organ be attacked by acute inflammation, ending in suppuration, the first symptom would be an inability to pass water, a retention, so to speak, rather than a desire to pass frequently; but after the bladder has become full the "besoin

d'uriner" becomes so urgent that the water is passed frequently and in small quantity. In this case, however, it is not due to inability, on the part of the bladder, to retain the water, but rather as the result of an over-full bladder; in other words, the frequency of micturition, under these circumstances, is due to an overflow, and would, of course, necessitate the use of a catheter to relieve the distended bladder.

Idiopathic hypertrophy of the prostate seldom comes on until after middle life—that is to say, between fifty and sixty years of age—and the accompanying frequency of micturition is probably due to a reflex irritation and to pressure upon the neck of the bladder by the enlarged prostate. The patient is then obliged to pass water more frequently than he has been in the habit of doing, not only during the daytime, but also at night; and this desire is accompanied by no pain or uneasy sensations, such as we find to be the case when the cause of this symptom is due to an acute inflammation, either of this portion of the genito-urinary apparatus or of the urethra.

As I have said, gonorrhœal cystitis is one of the causes of frequent micturition, but, besides that cause, cystitis due to other causes, such as cold, stone in the bladder, ulcerations of the mucous membrane and polypus of the neck of the bladder, will also produce the same train of symptoms, viz., an uneasy sensation about the neck of the bladder, a desire to pass water frequently, unattended by pain or tenesmus.

When the cystitis is due to the presence of stone, if the stone lie free in the bladder there will oftentimes be a strong desire to pass water and yet an inability to pass more than a few drops, perhaps, at a time. Sometimes this condition of affairs is varied by the stream coming in full size and in tolerable amount after the patient has changed his position, or has strained a ltttle, caused, probably, by the stone rolling away from the vesical end of the urethra and thus allowing an exit to the urine, and the few drops which are passed at first are due to the occlusion of the mouth of the bladder by the stone rolling in front. Of course, other symptoms of stone in the bladder, such as pain referred to the head of the penis, pain shooting down the inside of the thighs, would at once direct your attention to the possible existence of stone, and cause you to make an examination to settle that point.

If the stone be seated in the cul-de-sac of the bladder, or if it be encysted, the only symptom will be a sensation of uneasiness and weight in the bladder and a desire to pass the water more frequently than usual, but without any of the other symptoms of a stone, viz., occlusion or stoppage of the stream of water.

A tumor of the bladder will oftentimes cause the same condition of affairs, and I have seen one case in which a varicose condition of the veins about the neck of the bladder produced, in addition to the hæmaturia, a frequent desire to pass water, which was nearly always accompanied, toward the end of the act of micturition, by an amount of blood, varying from a few drops to a drachm or two at a time. This case was relieved by a perineal section and cystotomy, which relieved the varicose condition, and with it the urgent desire to pass water.

Ulcerations of the mucous membrane of the bladder will also sometimes induce the same condition of affairs, but in a less degree than when the disease is due to the causes to which I have already called your attention.

The presence of pus in the bladder, no matter what the cause may be, seems to produce a desire to pass water, and we find oftentimes that this symptom accompanies the existence of pyelitis. The pus coming down from the kidney through the ureters is deposited in the bladder, and there for some reason or other seems to act as an irritant, not sufficient, however, to excite an acute inflammation. but simply the desire to micturate more frequently than normal. The other symptoms of pyelitis, viz., pain about the renal region, the enlargement, etc., if the disease has sufficiently advanced to that stage, will put you on the track of the true cause of these symptoms.

Another point, also, to which I wish to call your attention, and which I have already incidentally spoken of, is the fact that a repeated micturition or a continued dribbling away from the urethra is sometimes due, not to an inability on the part of the bladder to retain its contents, but rather to an over-distention of this organ, and this is sometimes the case in atony of the bladder, due either to over-distention from the habit which some people have of retaining their water for a great length of time, or to paralysis of this organ, as the result of a paraplegia. In those cases the natural irritability of the bladder is destroyed and the urine accumulates until the viscus can hold no more. It then gradually leaks away, and the patient at first only notices that he has to pass his water more frequently than usual, and that what is passed comes away only in small quantities. The reason of this, from what I have already said, is perfectly plain. What comes away is the surplusage which the bladder cannot contain. As soon as that surplus is reduced to the standard which the bladder can hold no more comes away, because the contractile force of the bladder is lost and no more passes until the over-distention point is reached. The desire to urinate then comes on, and a little more is passed again, and so it goes on until later on the bladder, being unable to contract any longer upon its contents, the urine dribbles away continually. This symptom would, of course, at once attract your attention, but the earlier one of frequent micturition might, perhaps, not, and you would refer it to some other than its true cause.

Diabetes is also another cause for this condition, and is probably due to the large amount of urine which is secreting, and which finds its way into the bladder, filling that organ faster than it does in the normal condition, and so necessitating a more frequent desire for urination.

Besides pyelitis, other affections of the kidneys may also be the cause of frequent urination, and foremost among these stands chronic interstitial nephritis. This disease, characterized usually by a pale, slightly turbid urine, frequently gives rise to irritation of the bladder without inducing any disease in that viscus. The urine, when examined, is found a little below the normal standard as regards specific gravity, and usually contains albumen and casts. Both of these, however, are frequently absent. There is nothing peculiar in the appearance of the urine, and the only thing which attracts the patient's attention is the fact that he has to get up several times during the night to pass his water. An examination of the urethra and the bladder gives negative results and the urine, when examined, may also show but little

to point to the true cause of the disease. If albumen and casts are present, of course a diagnosis may speedily be arrived at; but in many instances both of these symptoms are absent, and then the main points in the question of diagnosis are the continued low specific gravity and the diminished daily amount of the urine which is passed. This variety of renal disease is oftentimes one of the most difficult to detect, owing to the fact that the symptoms are so entirely of a negative character.

Frequent urination may also be induced by what is known as neuralgia of the vesical neck, or of the bladder itself, as well as neuralgia of the urethra. This peculiar disease is attended by all the symptoms either of acute irritation of the neck of the bladder, or else of stone in the bladder, so much so that patients have sometimes been repeatedly sounded for stone, under the impression that the symptoms were due to that cause. It is attended not only by a frequent desire to pass water, but also by most distressing pain, usually immediately after the act of micturition, and which extends, in varying degrees of intensity, from the meatus to the neck of the bladder. At times the patient may be entirely free from pain and discomfort and pass his water apparently with no irritation and with no excessive frequency; at other times all these symptoms will be aggravated, and the patient will be called upon to empty his bladder, especially during the day, several times in the course of an hour, the amount passed at times being small in quantity and attended with extreme irritation. During the night, when the patient is asleep, the frequency is very much diminished, but toward morning it commences again, calling the patient up from his bed several times before he finally rises to dress. The urine when tested is perfectly clear and normal in all respects. Examination of the urethra fails to detect any particularly sensitive point or the presence of stricture. The bladder when examined fails to show any evidence of disease, and yet all these symptoms will continue, often in a most distressing manner, without any apparent cause.

This neuralgic condition is frequently associated with neuralgia of other parts of the body, but it sometimes seems to be confined alone to the genito-urinary apparatus. In the male subject the testicles will oftentimes be affected, but usually in an inverse ratio to the irritation of the bladder. Thus, if the symptoms of the bladder seem to be relieved, the neuralgia of the testes comes on with greater intensity, and *vice-versa*.

The question of the treatment, of course, varies with the cause which induces this symptom,—for remember that this condition of frequency of micturition is only a symptom and nothing else,—and it oftentimes is an important one, because it may be due to serious disease as well as to disorders of light character. If it be due to gonorrhœa, especially during the earlier stages, the use of injections, and notably the astringent injections, will relieve it perhaps as quickly as anything else. And although the frequency may be great, it is better to commence at once with the use of injections, especially with the sulphate or acetate of zinc, than it is to treat the case internally by the use of balsams or oils. In several instances I have been able, by applying a solution of 10 or 20 grains of the nitrate of silver solution directly through the endoscope, to relieve this symptom when it had been very marked indeed. And let me here repeat what I told you when speaking in a previous lecture, of the use of the endoscope in the treatment of urethral affections, that the urethra will tolerate a strong solution of nitrate of silver if it be confined directly to the point diseased, where an injection of half or quarter of the strength would produce a great deal of irritation in the canal. This is only repeating in the anterior portion of the canal what we sometimes find to be of benefit in the deeper portion of the urethra for the treatment of cystitis, of which I shall speak in a few moments. When the disease is in the deeper part of the canal—that is to say, near the prostate or neck of the bladder—injections will oftentimes relieve the symptoms, and it is here also that the topical applications through the endoscope are peculiarly of service. Many observers have been able to control an acute attack of cystitis, and even an epididymitis by the injection of a few drops of a strong solution of nitrate of silver to the deeper part of the canal by means of a deep urethral syringe. I myself prefer very much making the application through an endoscope, because the application can be confined to the diseased part absolutely, and there is no danger of the solution flowing over sound tissue, and in these cases I oftentimes make an application of quite a strong solution; seldom under forty grains to the ounce, and I have in some cases used a saturated solution.

If the symptom be dependent upon stricture of the urethra, the removal of the stricture by any one of the methods which are in vogue, and which I shall discuss in a future lecture, will relieve the symptom by removing the cause; but it sometimes happens that even after a stricture is thoroughly divided and large sounds are passed into the bladder, this symptom will continue. I recall one case particularly, which happened to me lately, in which I operated on a patient for irritable stricture of the urethra 5½ inches deep. The operation was by divulsion, and the stricture was split to a 32 F., the fullest size which his urethra was capable of admitting. Previous to the operation there had been a slight tendency to frequency of micturition, which seemed to increase after the sounds had begun to be passed regularly. After it was evident that the sounds would not relieve this condition, I examined him with an endoscope and found a congested and irritable point just behind his stricture. I made three applications of a 40 grain solution of nitrate of silver, with the result of relieving him entirely of his desire to pass water frequently, and the sounds were used afterward in the further treatment of the case, but at no time did this symptom of frequency of micturition recur.

If the disease be due to prostatic enlargement, but very little can be done. Iodide of potassium has been spoken of favorably in relieving this symptom in such cases, and it is worth perhaps a trial at your hands. Judging from my own experience, you will not have such brilliant results as you might hope for from reading the reported cases.

Where the disease is due to gonorrhœal inflammation of the bladder and prostate the use of the balsams, the oils of sandalwood and cubebs, small doses of turpentine, and suppositories of belladonna and opium should be tried, and in the course of a short time, as the inflammation subsides, this symptom will pass off.

When due to a varicose condition of the bladder or tumors within this viscus, surgical interference is the only thing to be resorted to, either by perineal section or by the suprapubic operation.

Frequent washings out of the bladder have been recommended in cases of cystitis, but I am inclined to believe that more harm than good has been done by such methods of procedure. If you decide to wash out the bladder, remember not to do it too frequently and, also, never to inject a large amount of water at a time. Four or six ounces of water thrown in is all the bladder will probably contain with any degree of safety, and the operation should always be done very slowly and the water allowed to run out without filling the bladder to its fullest extent. I need hardly say that in these cases the water should be warm and never cold.

When you have to deal with pyelitis as the cause of the disease, surgical instruments will not be required unless the kidney has become the seat of abscesses and so thoroughly disorganized as to require removal. Under these circumstances nephrectomy is the only thing to be done.

The treatment of chronic interstitial nephritis and diabetes comes more within the domain of the professor of clinical medicine than mine, and so I shall say nothing here in regard to it.

ORIGINAL ARTICLES.

SEPSIS OF THE NEWBORN AND DIPHTHERIA OF THE NEWBORN.[1]

By J. LEWIS SMITH, M.D.,
CLINICAL PROFESSOR OF DISEASES OF CHILDREN, BELLEVUE HOSPITAL MEDICAL COLLEGE, NEW YORK.

SEPSIS OF THE NEWBORN.

The manner in which sepsis or septicæmia occurs is sometimes obscure. Leube, in 1878, relates two cases (*Deutsch. Archiv für klin. Med.*) in which the examination failed to disclose the source or mode of infection. He designates such cases cryptogenetic, expressive of the unknown or occult origin. Wunderlich and Schützenberger allude to similar cases. But in sepsis of the newborn it is the common and apparently correct belief that the poison of sepsis usually enters the system at the umbilicus. The cases which I am about to relate are in harmony with this theory.

It is not my intention to discuss the nature of the septic poison, but there can be little doubt, from the examinations which were made, that in the following cases it was microbic and not of a chemical nature.

Cases of sepsis of the newborn may be conveniently classified as follows:

First Group. *Cases of umbilical phlegmon which is a local sepsis, the poison entering the system from an umbilical sore, and being conveyed by the lymphatics.* —The New York Infant Asylum at Sixty-first Street and Tenth Avenue has, during the twenty-three years of its existence, been remarkably free from contagious and infectious diseases, but since September 1, 1887, seven cases, in which either local or systemic sepsis was diagnosticated, occurred in newborn infants in the Maternity Ward of this institution.

It is proper to state that at the same time diphtheria was epidemic in the asylum, and that five of the newborn infants had diphtheria, the pseudo-membrane appearing in its usual situation on the pharyngeal, nasal and laryngo-tracheal surfaces, and, in one or two of the patients, also lining the œsophagus. Moreover, two of the five infants with diphtheria had umbilical phlegmon of a few days' duration when the diphtheritic exudate appeared upon the faucial surface.

The question is, therefore, a proper one, whether in these two cases the phlegmons were a local manifestation of diphtheria, or whether the umbilical phlegmon and diphtheria were distinct diseases having a different microbic origin.

Case I.—Victor M. was born, after normal labor, on January 5, 1888, and the umbilicus was dressed with borated cotton. The mother did well and was able to leave her bed on the seventh or eighth day. Nothing unusual was noticed in the infant until January 11th, when a little suppuration was observed in the umbilical fossa, at or around the point of attachment of the cord, and on examination the walls of the umbilicus were found thickened and indurated. The appearance indicated the commencement of an umbilical phlegmon, and the skin covering it was red as in erysipelas. The phlegmon extended in area until January 14th, when the thickening and infiltration reached to the distance of about one and a half inches in every direction from the umbilicus, so that the form of the phlegmon was circular or wheel-shape. Its thickness or depth near the umbilicus was perhaps three-fourths of an inch, but near its margin the thickening and infiltration were less. The pulse on the 13th varied from 132 to 144, and the rectal temperature was 101.8°.

The case was carefully watched by Drs. Davis and Cook, the resident physicians, whose records I employ, and the faucial surface was daily inspected by them. On January 14th, the baby being nine days old, they observed for the first time the grayish-white exudate of diphtheria on each side of the fauces, and a day or two later also upon the Schneiderian surface, so closing the nostrils that respiration through them was impossible. The baby, on attempting to draw the nipple, became cyanotic, and was obliged to relinquish its hold. During the 14th and 15th the temperature fell to 98.5° and 98°, the pulse was very feeble and too rapid to be counted accurately, and the respiration varied from 24 to 48. Death occurred on the 15th, at the age of ten days.

The *autopsy* revealed a diphtheritic pseudo-membrane upon the faucial surface on both sides, extending downward, so as to cover both surfaces of the epiglottis, the entrance of the larynx and the laryngeal surface, completely concealing the vocal cords and the portion of the larynx above them.

[1] Read before the Pædiatric Section of the New York Academy of Medicine.

The trachea and bronchial tubes were free from the exudate. The lungs, in nearly every part, were thickly mottled with points of extravasated blood, and less abundant extravasations were observed in and upon other organs. The umbilical phlegmon removed entire, and in a frozen state from the intensity of the cold in the dead-house, was sent to the laboratory of the College of Physicians and Surgeons, where it was carefully examined by Dr. Prudden. He reports that the umbilical vessels were in their normal state, showing no evidence of disease, except the mouth of the umbilical vein, or that portion of the vein which was next to and in immediate relation with the umbilicus. Plugging the mouth of the vein and extending a few lines along the lumen of this vessel was a thrombus or blood-clot, from which Dr. Prudden was able to obtain cultures, and in the culture bed two forms of cocci were developed, to wit, the staphylococcus pyogenes aureus occurring in the usual form in groups, and the streptococcus pyogenes producing beautiful and delicate chains. The portion of the vein enclosing the thrombus or clot had preserved its integrity, so that the clot was entirely distinct from the phlegmon which covered the vein. It did not seem possible that microbes, ptomaines or elements of the blood could pass from one to the other, on account of the firm coats of the vein which were interposed between them.

Portions of the phlegmon placed in culture media developed the same forms of cocci as those produced from the clot that plugged the mouth of the vein. We infer that the cocci were the septic agents since no other cause of the sepsis was discovered, and that they were received from the umbilical sore. Some entered the thrombus and others, taken up by lymphatics, entered the tissues which surrounded the umbilicus, and gave rise to the phlegmonous inflammation.

It is easy to understand how microörganisms may enter the umbilical vein after the fall of the cord, when there may not be complete closure of the mouth of the vessel. But it can scarcely be doubted that in the above case as well as in cases which I am about to relate, the septic infection took place through the raw and denuded surface of the umbilical fossa, the lymphatics being the carriers of the poison. We know how frequently granulations sprout out from the umbilicus of the newborn, and wherever there is a surface denuded of cuticle from which these may arise, there is a surface from which microbes or toxic agents may be absorbed. The umbilicus, too, is a receptacle in which microbes conveyed in the floating dust of an apartment, in foul water used for bathing, in dirty sponges, or abdominal binders or umbilical dressings, would be likely to lodge. M. Bouchut, in his remarks on the fall of the umbilical cord, says, "cords voluminous, soft and plump, dry slowly and often suppurate at their base before they fall (Les cordons, volumineux, mous et gras, se dessèchent lentement et suppurent souvent à leur base avant de tomber)." (*Traité Pratique des Maladies des Nouveau-Nes*, etc.) With conditions so favorable for septic infection it is perhaps surprising that it does not more frequently occur, especially in hospital or asylum wards.

The patient whose case I have related evidently had systemic infection in addition to the local septic infection in the phlegmon. The numerous points of extravasated blood in the lungs and elsewhere showed this. But doubt must arise, whether this general infection occurred from the phlegmon in which there was intense hyperæmia and an active circulation as shown by the inflammatory redness of the cuticle, or whether it resulted from and was connected with the diphtheria. But we will relate cases of systemic infection in which there was no diphtheria and in which the septic agent or agents entered the system through the umbilicus.

The volume of the *Transactions of the London Pathological Society for 1879* contains an able and elaborate report of the committee appointed by that Society to investigate pyæmia, septicæmia and purulent infection. Their report is based on the examination of the records of 156 cases occurring in the London hospitals, and it throws light on the cause of hemorrhagic extravasations occurring in cases of septic infection of the system. They remark: "On microscopical examination of different organs, micrococci were found in all, or at least in some of the viscera. They were nearly all in the bloodvessels, completely plugging capillaries; in masses which sometimes produced varicosities, or even rupture of the vessels and extended into the contiguous tissues" (*Brit. Med. Journ.*, January 24, 1880).

CASE II.—Hilda M , born February 28, 1888, was plump and robust, weighing eight pounds and seven ounces. The mother appeared to be well until March 3d, when she had fever, and symptoms which were apparently due to pelvic cellulitis, probably of septic origin. The infant was fretful on March 3d and 4th, and on March 5th a small ulcer was observed in the umbilical fossa. The skin surrounding the umbilicus, over an area the size of a silver dollar, had a deep red color, and the tissues underneath, constituting the abdominal walls, were infiltrated and thickened. The phlegmon gradually extended in every direction from the umbilicus, so that, on March 6th, it nearly reached the ensiform cartilage above and the pelvis below. The fauces had been inspected daily, and at 5 P.M., March 6th, the grayish-white exudate of diphtheria was observed for the first time, covering the tonsillar portion of the fauces on each side. On March 7th the exudate had increased, the cry was hoarse, the fingers livid at times, and fluid regurgitated through the nostrils. The phlegmon occupied nearly the entire abdominal walls anteriorly. March 8th, surface cyanotic; respiration labored and at times accompanied by the expiratory moan; a diphtheritic pseudo-membrane in the right nostril. Death occurred at 6.30 A.M., March 9th, at the age of ten days, on the fourth or

fifth day of the phlegmon and on the third day of the diphtheritic exudate upon the fauces. The rectal temperature varied from 99.8° to 102.8°, until the last day, when it was subnormal, being 96.6°; the pulse varied from 90 to 112, and the respiration from 40 to 60. Both the pulse and respiration gradually increased in frequency until death, this increase being, probably, largely due to the double pneumonia. The tincture of the chloride of iron in glycerin, brandy and breast-milk were given internally; iodoform and carbolized oil applied to the umbilicus, and antiseptic sprays employed to the fauces and nostrils.

Prof. T. M Prudden kindly consented to conduct the autopsy, which was made with sterilized instruments and under conditions designed to prevent access to the body of adventitious germs. The following are his notes:

Autopsy.—The umbilical orifice was covered by a dry, brownish scab, beneath which was a small, rough-edged cavity, containing a yellowish, semi-solid mass. The abdominal wall, for about three centimetres around the umbilicus on all sides, was hard, thickened and dusky-red. A section through the abdominal wall in the line of the umbilicus showed that the wall was thickened to about 1.5 centimetres immediately around the latter.

Both the umbilical vein and the hypogastric arteries, for about 1.3 centimetres from their attachment to the abdominal wall, were much thickened, red and hard, and their inner layers were converted into a soft, yellowish, friable material. Beyond this point all of these vessels were filled with blood-clots and appeared normal. There was no peritonitis, and all of the abdominal organs were normal.

The heart was normal. The pharynx, larynx and trachea showed soft, reddish, friable patches of diphtheritic membrane, partially covering their free surfaces. This membrane did not extend into the bronchi. The lungs showed broncho-pneumonia in both lower lobes, with considerable consolidation.

The microscopical examination of the parts about the umbilicus showed that at the point of attachment of the cord was a small pus-cavity whose walls were infiltrated with small spheroidal cells, with a few rod-like bacteria, and with large numbers of spheroidal bacteria. Similar spheroidal bacteria were found in the purulent detritus contained in the cavity, as well as within the lumina and infiltrating the walls of the adjacent ends of the umbilical vein and the hypogastric arteries.

The tissues of the abdominal walls about the umbilicus were infiltrated with serum, fibrin and a moderate amount of pus. Spheroidal bacteria were rather scantily scattered in the lymph spaces of the swollen tissues, being most abundant near the umbilical vessels.

Biological examination of the contents of the inflamed portion of the umbilical vessel showed the presence of several species of bacteria. The species which was by far the most abundant was readily identified as the *staphylococcus pyogenes aureus.*

The anatomical diagnosis, then, is diphtheria of the pharynx, larynx and trachea, with double broncho-pneumonia, localized septic inflammation of the umbilical vein and hypogastric arteries, and of the abdominal wall surrounding them.

As the evidence of local infection is so great, it seemed desirable to gain some data as to the purity of the air in the wards. Accordingly, such analyses as time permitted were made by Dr. T. M. Cheeseman, Jr., who presented the following: "A biological examination of the air in the lying-in ward of the New York Infant Asylum, made on March 7, 1888, showed a very large number of living bacteria, of many different kinds. Among them the staphylococcus pyogenes aureus was of frequent occurrence. A second examination, made immediately after the usual sulphur disinfection, showed a large number of living germs."

Case III.—Janse J., born January 3, 1888, was wet-nursed by its mother, and apparently did well until January 16th, when the attention of the resident physician was directed to it and an umbilical phlegmon was discovered as large as a twenty-five cent piece, the skin covering it being intensely red; temperature 98.5°. The dressing, after the discovery of the phlegmon, consisted in dusting with iodoform and the application of carbolized oil (one part of carbolic acid to twenty-five of sweet oil). January 17th, phlegmon not extending and its surface less red. The redness, thickening and infiltration gradually abated, and on January 21st the patient was removed from quarantine. In this case there was no record of an umbilical sore; the fauces remained normal, so that the diagnosis of diphtheria was excluded. The mother continued well.

Case IV.—George C. was born in the maternity ward, January 14th. On January 25th the nurse observed a small vesicle upon the border of the umbilicus, and removed the cuticle covering it. Some hours afterward the attention of the resident physician, Dr. Davis, was called to it, who found thickening and infiltration of the umbilical wall, most marked on the side which had been occupied by the vesicle. The same treatment was employed as in Case III. The records of January 26th and 27th state that the redness and infiltration are abating, and on the 29th the umbilicus had returned to the normal state.

Case V.—John S., born October 14, 1887, the mother being a healthy primipara. The child was well developed at birth, weighing nine pounds and four ounces. The cord fell on the sixth day, and a small ulcer with indurated edges was observed in the umbilical fossa, at the point of attachment of the cord. The induration in and around the umbilicus increased slowly until the ninth day. On the ninth day the child was restless, and, on examination, the ulcer was found enlarged and surrounded by a zone of inflamed tissue half an inch in width. The inflammation, accompanied by the usual infiltration and swelling gradually extended, so that on the 15th the diameter of the inflamed area was two inches. The ulcer had also increased. On the twentieth day after birth the ulcer had attained the diameter of two inches and the depth of three-eighths of an inch, but the induration had begun to abate.

From this time improvement was progressive, and no notes were taken after the twenty-fourth day. The rectal temperature, ascertained each day from the ninth to the twenty-fourth day, varied from the normal to 102°. During the active period of the phlegmon it was usually from 100° to 101 5°, and the emaciation was progressive, the loss of weight being estimated at two pounds. The treatment consisted in dusting with iodoform and the use of a compress of absorbent cotton soaked with a solution of carbolic acid. During the second week, under the advice of the attending physician, Dr. George B. Fowler, calomel was also dusted on the sore. On the twenty-fourth day the infant was removed to the Post-Graduate School, and its subsequent history is unknown. The mother had no unfavorable symptom.

CASE VI.—Joseph D., born October 22, 1887; well-developed, weighing seven pounds thirteen ounces. The cord fell on the eighth day, leaving a small ulcer at its point of attachment with an indurated border. Two days later, the tenth day after birth, the ulcer had increased slightly being one-quarter of an inch in diameter. The surrounding tissues to the distance of one inch were thickened and indurated from inflammation. At no time was the temperature above 99.1°, and the child though restless, nursed well. The tumefaction and hardness surrounding the umbilicus remained about the same until the sixteenth day, after which they gradually abated. The ulcer had healed at the end of the fourth week. The mother on the third day after confinement had elevation of temperature which continued four days; and six weeks after the birth of the child she had diphtheria in the usual form. During the same month—October—twenty-seven obstetrical cases were under observation, but all except this patient convalesced without an unfavorable symptom.

SECOND GROUP.—*Cases in which the septic poison probably entered the system through the umbilical vein.*

CASE I.—In May, 1884, an infant died of sepsis at the New York Infant Asylum, at the age of fifteen days. It was apparently well until about the close of the first week, when the umbilicus was observed to be raw, and a slight oozing of a puriform liquid occurred from it. During the second week the abdomen was hard and tender, and peritonitis was diagnosticated. The cord fell on the seventh day. During the second week the abdomen was apparently painful; the temperature three days before death was 100.6° and two days before death 102.4°. Examination of the chest gave a negative result. The post-mortem examination was made by Dr. W. H. Welch, now Professor of Pathology in Johns Hopkins University. The abdomen contained six ounces of turbid serum with flakes of fibrin. The portion of the peritoneum covering the umbilical vein, and along the under surface of the liver, especially at the transverse fissure, was covered with fibrin, but the peritoneum generally did not exhibit any notable hyperæmic or inflammatory appearance. A number of lymphatic vessels filled with pus could be seen in the under surface of the diaphragm, showing in what way septic infection extends along the lymphatics. The lymphatics of the diaphragm open upon the pleural surface, and it is probable had the patient lived longer that septic pleuritis, perhaps on both sides, would have occurred. The umbilical vein was filled from the umbilicus to the transverse fissure of the liver with a grayish softened detritus, consisting of broken-down thrombi with a considerable proportion of pus. Softened thrombi could be traced the entire length of the umbilical vein, the walls of which were thickened and infiltrated from inflammation. No thrombi were seen in the portal vein or vena cava; the pericardium contained more than the normal amount of serum with flakes of fibrin; hemorrhagic points were observed in the posterior portions of the lungs under the endocardial surface, under the peritoneal coverings of the kidneys and mucous covering of their calices. The mother did well giving no evidence of disease of any kind.

CASE II.—This infant, born in the New York Infant Asylum, the date not being given, was well developed at birth, weighing eight pounds six ounces. When four or five days old it became feverish, the temperature rising to 104.6°. The cord separated at the usual time, and the umbilicus seemed healthy. At the age of two weeks an abscess appeared upon the scalp, another upon the back and another upon the nates, which raised the suspicion of septic poisoning. At the age of four weeks orchitis on one side occurred, which continued three weeks when it abated. When the child was two months old, a prominence appeared about half an inch above the umbilicus, which Dr. Parker, the resident physician, punctured, and bile flowed from the incision. Subsequently the incision closed, and bile flowed from the umbilicus and continued to flow until death, which occurred, in a state of much emaciation and weakness, at the age of eight months.

At the autopsy, made by Prof. Welch, remains of old abscesses were found upon the trunk and extremities, and an abscess holding four drachms of pus was found over the occipital bone. Underneath the abscess the bone was carious and the dura mater thickened. The umbilical vein was much larger than normal, its walls being infiltrated and thickened, and its lumen of about twice its usual diameter. It contained thickened bile. One of the branches of the vein, traced into the liver, opened into an abscess the size of a walnut, which contained thickened pus with bile. The abscess was in the right lobe near its posterior border. The mother remained well.

CASE III.—Lizzie C., born September 21, 1887, robust, weighing eight pounds, seemed well, taking the breast, and having normal evacuations until September 28th, when she became restless and refused the breast. Her temperature, rectal, was 101.4°, and her respiration was accelerated and accompanied by the expiratory moan. September 20th, temperature 103.6°, respiration accelerated and painful, and abdomen distended; no cough. The diagnosis of peritonitis, probably of septic

origin, was made, but the umbilicus was of usual appearance, and the desiccation and fall of the cord seemed normal. The elevation of temperature, even to 104.4°, the distention of abdomen and the hurried respiration with expiratory moan continued until death which occurred September 30th.

At the autopsy three ounces of sero-purulent liquid containing flakes of fibrin escaped from the peritoneal cavity. All the abdominal organs were covered by a fibrinous exudation, the intestines being matted together by it. The umbilical vein was pervious; it contained clots of blood and dirty-looking pus; but the umbilicus was apparently normal. A segment of the aortic valve was thickened and rigid, and attached to it was a fibrinous mass. The appearance indicated an endocarditis of slight extent. Under the microscope the walls of the umbilical vein presented their normal appearance; but its dirty-looking and disintegrating contents probably contained septic matter. The hepatic cells exhibited the peculiar cloudiness observed in parenchymatous inflammation. Otherwise the organs seemed healthy. In this case also the mother remained well.

Case IV.—A. B., born January 22, 1868, father healthy but mother strumous though in good health during her gestation. The infant born after an easy labor, was apparently well at birth, and it had sufficient breast milk. When it was thirteen days old, I was requested to visit it, as it had not been doing well, and I found it suffering from subcutaneous abscesses. Abscesses had occurred upon both legs, in the chest walls of the right mammary region, in and around the metatarso-phalangeal articulations of one foot and over both knee-joints. The child had fever, but its respiration was good until February 8th, when she suddenly had a severe attack of dyspnœa which continued until death, ten hours subsequently. On the following day Dr. Charles A. Leale and myself made the autopsy. The body was moderately emaciated. About one ounce of pus escaped from the right knee-joint. Pus was also found in the joint of the great toe on one side, and about two ounces in an abscess under the right pectoral muscle. A thin layer of tissue constituted the internal wall of the abscess, so that had life been prolonged a few days it would probably have broken through into the pleural cavity. The right lung was completely collapsed, and the pleura lining this lung, as well as that lining the thoracic walls on the same side, was covered by a fibrinous exudation. The left lung contained the normal, or perhaps more than normal, amount of air, so that it filled the pleural cavity, but there was a small amount of fibrinous exudate upon the parietal pleura in this cavity.

The trachea and lungs attached were removed, and on practising insufflation of these organs, air escaped from three openings in the posterior part of the right lung. These openings through which air had escaped into the pleural cavity causing collapse of the entire lung, were found on examination to have been produced by small abscesses in the tissue of the lung near its posterior surface. By the rupture of these abscesses, the pus which they contained escaped into the pleural cavity producing intense general pleuritis and pneumothorax. Numerous minute abscesses were found in both lungs, but only the three alluded to had been ruptured. It seemed certain that had the patient lived longer other abscesses would have ruptured.

Case V.—In the following case bacteria were found making their way along the umbilical vein at a distance from the umbilicus, and also in the tissues involved in the umbilical phlegmon. Those in the phlegmon were apparently derived from the umbilicus and conveyed by the lymphatics. This case, therefore, might be placed in the first group as well as the second.

Anne — was born in the New York Foundling Asylum on May 18, 1888. A few days after birth, and before the cord dropped, the umbilicus was observed to be foul from secretion or exudation in it, indicating a sore at the base of the fossa. On the seventh day an umbilical phlegmon was noticed small and confined to the umbilical walls. Three white patches were also observed on the roof of the palate near the velum, not raised and apparently not diphtheritic, resembling superficial ulcers. All the infants born in the Maternity Ward of the Foundling Asylum receive Credé's treatment, designed to prevent purulent conjunctivitis, one drop of a two per cent. solution of nitrate of silver being instilled between the eyelids of each eye. Although this child was thus treated, she had a pretty active purulent conjunctivitis of the left eye, to which our attention had now been called for the first time on the seventh day. Credé's treatment was immediately reapplied to this eye, one drop being introduced between the lids. This was followed by the corrosive sublimate treatment recommended by the late Prof. Samuel D. Gross. A solution of the sublimate, two grains to the ounce, was dropped between the lids every hour to two or three hours, four or five drops being used each time. The conjunctivitis rapidly abated, and in less than a week had nearly or quite disappeared. But the phlegmon presented a very angry appearance and the umbilical walls were greatly swollen, red and denuded of cuticle. The inflamed area had a diameter of about four inches with the umbilicus at the centre. Iodoform and carbolized oil were applied to the umbilicus and iron and stimulants given internally. The rectal temperature, taken May 26th, was 98°. Death occurred May 27th.

Autopsy, by Dr. W. P. Northrup, Curator, thirteen hours after death. Body well nourished; no rigor mortis; no external lesion, except the umbilical; the phlegmon definitely outlined and hard; its central half brown and dry; the infiltrated abdominal wall had twice its normal thickness; peritoneal surface of phlegmon congested and adherent to omentum; from this point to the transverse colon was a leash of dilated vessels, one inch in width and three or four inches in length; peritoneum injected and a few petechiæ observed in the parietal layer and the mesentery; mesentery deeply injected; liver and spleen normal; kidneys soft and flabby; points of hemorrhagic pneumonia in all the pulmonary lobes; abundant tenacious mucus covering the sur-

face of the stomach and intense injection, showing acute gastritis; cerebral pia mater finely injected, but without exudation; brain normal. Diagnosis, umbilical phlegmon, peritonitis, acute gastritis, hemorrhagic pneumonia.

Microscopical and biological examination by Prof. Prudden, at the laboratory of the College of Physicians and Surgeons. The small ragged cavity at the umbilicus contained a moderate amount of pus, cell detritus, and enormous numbers of bacteria of various forms, the spheroidal form predominating. The tissues of the abdominal wall about the umbilicus were infiltrated with fluid, fibrin and pus; scattered about in this exudation mass were small spheroidal bacteria. The hypogastric arteries and the umbilical vein were plugged with a clot for from one-half to three-quarters of an inch from their origin; their walls were greatly thickened by infiltration with inflammatory exudate. Both in the lumina of these vessels along the sides of the clot, and in the lymph spaces in their walls were enormous numbers of small spheroidal bacteria. These bacteria were present in the umbilical vein beyond the limits of the clot in the direction of the liver.

The *kidneys* showed moderate parenchymatous degeneration. The consolidated areas in the lungs are due to a nearly complete filling of the air spaces and the smaller bronchi with blood.

Cultures made from the inflamed tissue about the umbilicus and from the edges of the sloughing cavity, showed several species of bacteria common in the air and in the feces of children. In addition to these the staphylococcus pyogenes aureus was present in large numbers. A set of cultures from the inside of the umbilical vein, at a little distance from the sloughing cavity, revealed the presence of staphylococcus pyogenes aureus and streptococcus pyogenes, together with other forms. Cultures from the liver showed large numbers of staphylococcus pyogenes aureus, with considerable numbers of a stout bacillus similar to one abundant in the sloughing cavity. From the lung tissue, from the consolidated regions, enormous numbers of bacilli developed in a nearly pure culture, which corresponded in its biological characters to the bacterium lactis aërogenes of Escherich.

Remarks.—This child would thus seem to have been the victim of infection with the ordinary "suppurative bacteria" and with feces. We infer that fecal matter in some way came in contact with the umbilicus.

THIRD GROUP.—*It seems probable that in exceptional instances the septic poison in sepsis of the newborn is received in other ways or other channels than at the umbilicus.*

If sepsis of the new-born occur through absorption from an umbilical sore, may it not also from a sore located elsewhere? Decomposing and disintegrating animal tissue, wherever located, may be the source of septic infection. Moreover, medical literature contains histories of epidemics of puerperal fever, in which newborn infants perished with what was often designated erysipelas, but which the modern pathologist would unquestionably designate sepsis. The disease which I have described as umbilical phlegmon, a local sepsis, was commonly regarded by the older writers as a form of erysipelas. Dr. Condie, in his *Treatise on Diseases of Children*, described in the following lines what we would now designate sepsis:

"Erysipelas of infants very commonly occurs during the prevalence of epidemic puerperal fever. Children of mothers who become affected with the fever are often born with erysipelatous inflammation; others are attacked almost immediately after birth. Whether in these cases the disease is to be referred to a morbid matter applied to the skin in the womb, or to the same endemic or epidemic influence which gives rise to the disease of the parent it is difficult to say. According to M. Trousseau, infantile erysipelas is principally observed when puerperal fever prevails in the wards of the lying-in hospitals of Paris."

The late Dr. Folsom, of this city, furnished me the following sketch of cases which occurred in his practice and that of his partner: "About the year 1840, being then in practice in New Bedford, Mass., I was called to visit a man who complained of pain in the knee. The next morning he was easier, but the following evening his symptoms grew worse, and as I was engaged in a case of obstetrics, my partner, Dr. E. C., now dead, visited him. At my call, next morning, I unexpectedly found the patient dying. The disease was obscure, and at the autopsy next day no lesion was discovered. In making the examination, Dr. C. pricked his finger, and experiencing little inconvenience from it at first, he attended a case of confinement on the following morning. A few hours subsequently he was taken sick, and I took charge of the lady, who died in three days, having the tumid abdomen and symptoms of childbed fever. The infant of the patient was seized, when two days old, with erysipelas, appearing on the face and in spots on the trunk and limbs, and terminating fatally in one day. Dr. C.'s finger became swollen and painful, and the lymphatics of the forearm and arm became inflamed, presenting red lines, and the axillary glands suppurated. Though feverish and much prostrated, there was no appearance of erysipelas in his case. In about two weeks he resumed practice, and as at that time physicians in this country were not fully aware of the danger of communicating puerperal fever, he attended two, three, or four obstetrical cases each week, until the number reached fifteen. All the mothers died with symptoms of metro-peritonitis, and all the infants had erysipelas, commencing on the face or some part of the body, generally on the second or third day after birth, and in all terminating fatally within a week. This sad record was finally ended by the doctor's temporarily retiring from practice."

What better description could be given of a malignant form of septic infection? It will be observed that the unfortunate doctor did not have erysipelas but inflammation of the lymphatics, occurring from the poisoned finger, and the infant, who first contracted the disease and died of one day's sickness, exhibited red spots upon the trunk and limbs of an erysipelatous appearance. Did the doctor poison the mothers and infants at the same time by his digital examinations, did he poison the mothers by his infected fingers, and they in turn poison the babies through the placental circulation, or did the infected mothers communicate the poison through the breath or milk? This is an interesting subject

for inquiry in regard to which we are in the dark. Fortunately the profession are now fully aware of the danger of septic infection, so that no intelligent and prudent accoucheur would attend an obstetrical case after making a post-mortem examination, or visiting a case of puerperal fever, without change of clothing and thorough personal disinfection, and consequently cases belonging to our third group are much more rare than formerly.

It is evident that sepsis of the newborn might be prevented in a large proportion of instances by proper antiseptic dressing of the navel. Boric acid is a feeble and inefficient antiseptic, and the borated cotton which was employed in dressing the navel when the cases in the maternity ward, which have been related above, occurred, was inadequate to prevent infection. Of the powders which might be employed for this purpose salicylic acid or deodorized iodoform mixed with starch would appear to be much more efficient. Credé's method of preventing purulent conjunctivitis by instilling one drop of a two per cent. solution of nitrate of silver between the lids has been very effectual. Probably in a similar manner umbilical phlegmon might be prevented in maternity wards by bathing daily the umbilicus with a solution of the sublimate, grs. ij to the pint.

When an umbilical phlegmon has commenced, we have employed dusting with iodoform, the application to navel, every two hours, of carbolized sweet oil (1 to 30), and bathing the navel with a solution of corrosive sublimate, two grains to the pint of distilled or boiled water. In some of the cases thus treated when the phlegmons were small the patients gradually recovered, but in most of the cases the phlegmons were so large, and the microbes at such a distance from the umbilicus in the tissue of the abdominal wall that antiseptics applied upon and around the umbilicus were not curative. Newborn infants are probably too young and feeble to be satisfactorily treated by incisions in the phlegmon and the application of antiseptics to the incised surfaces, else this treatment might be more efficient than treatment without such incisions.

DIPHTHERIA OF THE NEWBORN.

Diphtheria of the newborn is rare, and the literature of it meagre. Nevertheless, a considerable number of cases under the age of one month have been reported. Oertel is mistaken when he writes "... in the first half year the infant organism seems to be not at all susceptible to the disease." Dr. Abram Jacobi writes in his *Treatise on Diphtheria*, "I have met three cases of diphtheria of the larynx and pharynx in the newly born myself. One of these became sick on the ninth day after birth and died on the thirteenth day; the other died on the sixteenth day after birth; the third was taken when seven days old and died on the ninth day." Dr. Jacobi alludes to the thesis of Siréday, of Paris, published in 1877, in which eighteen cases of diphtheria of the newborn are related. They occurred during the spring of 1877 in the hospital Lariboisière. He alludes also to several cases reported by Parrot, one of fifteen days by Bretonneau, one of seventeen days by Bednar, one of eight days by Bouchut and one of seven days by Weikert.

Diphtheria, which had been prevailing in the New York Infant Asylum since October, 1887, appeared in the maternity wards of the institution in January, 1888. The patients affected with it were all newborn infants, the mothers, although mostly young, escaping.

Case I.—Violet M., whose case is related in the paper on sepsis. When she was six days old the phlegmon commenced; two days afterward nasal catarrh began and a day later when she was nine days old the diphtheritic exudate was observed in her left nostril and upon the faucial surface. The symptoms in full are recorded in the paper on sepsis. Death occurred at the age of ten days. At the autopsy the pseudo-membrane was found on the surface of the fauces, both surfaces of the epiglottis and the entire larynx to a point a little below the vocal cords. The vocal cords were completely concealed from view by the exudate.

Case II.—Olivia G., born January 8th, was wet-nursed by her mother, and was apparently well until January 14th, when she became restless. On the following day, when she was seven days old, she was carefully examined and diphtheritic patches were observed upon the faucial surface. Rectal temperature 100°, respiration 36, pulse 120. She had commencing nasal catarrh, which so obstructed the breathing that she could not take the breast, and she was fed with the mother's milk from a spoon. Directions were given to syringe the nostrils at intervals of two hours with the following:

R.—Ol. eucalypti	℥j.
Sodii bicarbonat.	āā ʒij.
Sodii benzoat.	
Glycerinæ	ʒj.
Aq. calcis	℥vj.—M.

Small doses of the tincture of the chloride of iron and brandy were also given at short intervals.

16th. Deglutition is so difficult that almost no nutriment is taken; breathing obstructed; features and extremities livid; temperature 101⅕° to 103⅕°; pulse 120, 112, 104; respiration 32, 34, 46; discharge from nares tinged with blood. The mustard bath was employed, but without producing reaction.

17th. The diphtheritic patches remain on the faucial surface, and the right nostril is plugged by an exudate of the same appearance. Rectal temperature at different hours through the day was 98½°, 98°, 99°, 98°; pulse 120, 118; respiration 32, 38; pulse weak, and surface cyanotic and cool. About one teaspoonful of brandy was given through the day, and the same quantity of milk; hot bottles applied.

18th. Nostrils discharging freely; temperature 103°; pulse 140; respiration 45, 60. Cry hoarse; pulse very feeble. Died at 11 P.M.

Autopsy.—January 19th. In addition to the diphtheritic exudation, already mentioned, occurring upon the faucial and nasal surfaces, a pseudo-membrane was found covering the larynx, trachea and œsophagus to within one inch of the stomach. The lungs contained numerous points of extravasated blood. No notable change was observed in the appearance of the kidneys, heart and other organs.

CASE III.—Victor K., born December 7, 1887. On January 13th, when Victor was thirty-seven days old, his mother called the attention of the resident physician to him as he seemed seriously sick. His temperature was 103.2°, and his breathing indicated nasal catarrh. On the following day, the 14th, the characteristic grayish-white exudation of diphtheria was observed on the left side of the uvula. The inability to remove it by brush or washing demonstrated its diphtheritic nature. The temperature on the 14th varied from 99° to 102.4°; the pulse from 88 to 96; and the respiration from 26 to 38, having the Cheyne-Stoke's character. The pulse was weak and the extremities and face cyanotic. On the 15th his temperature was 102°; respiration 20 with long intervals; and the frequency of the pulse could not be ascertained from the weak action of the heart. Death occurred at 5 P.M. Diagnosis bronchitis, nasal and slight pharyngeal diphtheria. The right cavities of the heart were greatly distended with blood. No pseudo-membrane was found in the larynx, trachea and bronchial tubes but only the hyperæmia of bronchitis. Lungs normal, except hypostatic congestion of posterior portion of each.

CASE IV.—Vincent B., born December 31, 1887, was apparently well until January 17th, when symptoms of a catarrhal nature attracted attention. The nostrils seemed to be unaffected, but upon the posterior surface of the pharynx was a distinct diphtheritic patch; temperature 98.5°; respiration 32 to 40; pulse 114 to 120.

18th. Discharge from nostrils; temperature 98.5°; pulse 116 to 118; respiration 36. The same nasal and throat wash was used as in the other case. On the 19th the exudate on the surface of the fauces had nearly or quite disappeared.

20th. Nasal catarrh less, and infant apparently improving. Pulse 118; respiration 28; temperature 98.5°.

21st. No discharge from nostrils and fauces apparently free from pseudo-membrane. The infant soon fully recovered.

CASE V.—Hilda M. This case is fully detailed in the article on "Sepsis." She was fretful when four days old, and at the age of six days an umbilical phlegmon was discovered. The fauces were inspected daily, and when she was seven days old the grayish-white exudate of diphtheria was observed for the first time covering both tonsils. On the following day the exudate appeared in the right nostril. Death occurred on the tenth day, and at the autopsy in addition to the phlegmon, the pharynx, larynx and trachea showed soft, reddish, friable patches of diphtheritic pseudo-membrane partially covering their surfaces. The membrane did not extend into the bronchi.

Diphtheria of the newborn is sometimes wrongly diagnosticated. Thus in the New York Foundling Asylum where diphtheria was occurring, the tonsils of an infant a few days after birth presented a grayish-white appearance, and diphtheria was diagnosticated. After its death the curator, Dr. Northrup, discovered a pultaceous state of the surface of the tonsils, but no pseudo-membrane. The disease was not diphtheria. But in regard to the cases related above there can be no doubt of the correctness of the diagnosis, unless in regard to Case III. The occurrence of five cases in so short a time, in a rather small maternity service, shows that under certain circumstances the newborn infant exhibits considerable susceptibility to diphtheria.

A very interesting and important subject for consideration arises in connection with these cases, to wit, personal and domiciliary disinfection. The occurrence of so many cases of umbilical phlegmon and diphtheria showed that the maternity ward was infected to such a degree that subsequent patients could not be safely admitted without thorough disinfection. The ward was vacated, the windows, doors and crevices closed, and forty pounds of sulphur, or two pounds to the one hundred cubic feet of air, were burnt during the day until it was consumed. After some hours the windows and doors were opened, and Drs. Prudden and Cheeseman immediately raised a dust from the floor and bedding and allowed it to settle in culture media. All other sources of infection were excluded from the media. The culture produced so large a number of microbes that they overlaid each other, but they were able to distinguish the streptococcus pyogenes which had been previously discovered in the umbilical phlegmon. Although more sulphur was employed than is recommended by the Health Board, the result appears to have been negative as regards destruction of the microbes. Some more efficient mode of domiciliary infection should be devised. I recommend to wash the floors, walls and furniture of an infected room with a strong solution of corrosive sublimate. This might be done frequently during the progress of a case of diphtheria. In order to disinfect the air of an apartment where a diphtheritic patient is under treatment, a disfectant mixture should be placed over the gas, oil or other stove in shallow pans with broad surfaces, and kept in a state of constant ebulition or simmering. I prefer for this purpose the following prescription:

R.—Acidi carbolici . . . . . ℥j.
Ol. eucalypti . . . . . ℥ss.
Spts. terebinth. . . . . ℥vj.—M.

Add one tablespoonful to one quart of water.

One important advantage arises, I think, from this

mode of disinfecting the air, namely, that the physician and attendants are less likely to convey the disease in their clothing. It is probable that the danger of communicating diphtheria to other children, or to obstetrical cases is greatly diminished if the air be sufficiently loaded with the disinfecting vapor. No more cases have occurred in the Infant Asylum since this mode of disinfection was employed.

Although the prognosis in diphtheria of the newborn is very bad, it is not necessarily fatal as is seen by the above cases. Does it require, on account of the age, any modification of the usual mode of treatment? Very few, probably, would recommend the internal use of corrosive sublimate for patients so young, but there seems no objection to its local use by the swab or camel-hair pencil of so weak a solution as that employed by Dr. Oatman and others, two grains to the pint of water. The old remedy of the tincture of the chloride of iron, so long employed as a blood-restorer, and properly employed as a chief remedy in diphtheria, which is attended by a rapid destruction of the red corpuscles and progressive anæmia, seems to be a proper remedy for any age. It was employed in the above cases in frequent doses of one to two drops.

As the ordinary mode of domiciliary disinfection seemed to be entirely futile in the maternity wards where the above cases occurred, it seemed to me advisable to obtain the views of so eminent an authority as Dr. E. R. Squibb, of Brooklyn, and he has kindly favored me with the following note:

Remarks by E. R. Squibb, M.D.—Within the past ten years the efficacy of sulphur fumigation against infectious material has been repeatedly denied and reaffirmed upon very good authority, and observations, apparently made with accuracy and care, have been reported from time to time, to prove both sides of the question; so that all that can now be said is that burning sulphur is of doubtful efficacy, with the weight of the highest authorities in bacteriology against it. But to this it must be added that it is still largely used by very intelligent bodies in large institutions, boards of health, etc., where it would not be likely long to maintain an unearned confidence.

How often the fumes are applied dry, and how often moist, no one can tell from the current record; and how many of the failures of the dry gas would be successes in the presence of moisture there is no means of knowing.

Formerly, when sulphur was burned in closed chambers as a disinfectant, the surfaces were all wetted, and the pot of burning sulphur was set in water or in wet sand, that the heat might evaporate off a constant supply of watery vapor.

These conditions are now frequently, if not generally, neglected, and where this is the case failure on principle should be the rule.

Nearly all, if not all, chemical disinfectants are in a state of tension, ready to change on coming in contact with the matter to which they are applicable, and these changes are either by oxidation or deoxidation, and the moment of greatest power or activity is the moment of change, where they, by reacting with infectious matter, pass from a state of tension to a state of rest under new relations. The agency through which these changes almost universally become operative is the vapor of water.

When sulphur is burned in a close chamber, the dioxide is formed by condensing two molecules of oxygen from the air upon each molecule of the sulphur, and a heavy gas is the result, which tends to settle at the bottom of the chamber, and to run out through the lower cracks. Any moisture present is at once seized by this rather inactive anhydride, first forming sulphurous acid, and then, by oxidation from the air, sulphuric acid. The dry gas, or anhydride, not only seizes with avidity all watery vapor in the air, but also the water held in the surfaces of all bodies with which it comes in contact, and in the presence of this moisture only is it ready for further oxidation. Then it is by this oxidation that it deoxidizes the matters with which it is in moist contact, filling the surfaces of these matters first with sulphurous acid, then, by the change, with sulphuric acid; and it is during these changes that its power is exerted.

If there be no moisture supplied to the burning sulphur, that which was present in the air and the surfaces of the chamber is soon used up, and the dry gas remains indefinitely in a comparatively inactive, ineffective condition. The dry, passive anhydride would necessarily destroy all organisms which breathed in any degree, because breathing surfaces are moist. But in embryonic life, protected by shell, as in seed, if the shell be dry the gas would be impotent. Many bacteriologists have admitted that burning sulphur would kill bacteria, but not germs.

ACUTE INFECTIOUS PHARYNGITIS.

By E. M. Hewish, M.D., F.R.C.S. Eng.,
of Philadelphia.

The above-described disease will, I believe, to the majority of us, prove to be a new one. How many may have anticipated the addition of a new medical term to our nomenclature, to express a pathological condition with which they, at one time or another, may have met, it is impossible to say, since we have not in medical literature probably more than a half dozen cases. What impressed upon me the novelty, and later on the extreme gravity of the disease, was having met with a case in practice during March last.

While in attendance upon another member of this gentleman's family he casually drew my attention to

his throat, which he said was painful on swallowing. On examining it, I found the anterior pillars, uvula, tonsils and posterior pillars of the fauces congested. The patient complained of lassitude, vague pains in the extremities, voice not clear and a considerable amount of tenacious mucus; it requiring great effort to free the throat. The patient, a man of forty-two years, weight about 180 pounds, had always been in good health. Temp. 101° F., pulse 90. Prescribed tab. hydrochlor. cocaine gr. one-fifth, every hour, to relieve dysphagia, also gargle ammon. mur. gr. v. to ʒss water, and a pill of

R.—Quin. sulph. . . . . gr. ij.
Ammon. mur. . . . gr. ij.
Sol. ferri chlor. . . . gr. ij.
One after each meal.

Patient continued to attend to his business (merchant tailor), contrary to monitions, and it being the severe weather of last March, matters were readily precipitated.

In three days' time he took to bed, as advised, and since the articular stiffness was still complained of, I prescribed R. sod. salicyl. gr. xv every three hours till relieved, but little relief was obtained.

At this time, cervical tumefaction began to show itself; no special glands could be felt enlarged; the swelling was symmetrical in all directions; dysphagia severe; tonsils much enlarged and, on palpation were quite hard, showing no tendency to formation of abscess; nor did they at any time during the disease; voice husky, and dyspnœa somewhat complained of.

5th day. Saw patient early, as he complained severely of dyspnœa and dysphagia; temp. 102°, pulse 110; had no rest during the night on account of inability to remain in bed, and consequently sat up in a chair. Tonsils and uvula same as heretofore; a small ulcer had formed on the side of the uvula. Externally the swelling had increased.

6th day. Saw patient early, as dyspnœa was very alarming to himself and family, who thought he must soon strangle if not relieved. He sat up during the night, although I had ordered him ¼ gr. morph. sulph. and had it repeated in an hour, but it did not secure rest. Little nourishment was taken on account of dysphagia. Neck very much swollen, but no fluctuation or tenderness. Lungs showed no symptoms of complication; heart-sounds normal; temp. 101° F.; pulse 112. Patient now taking tr. ferri mur., ♏ x, ammon. mur., gr. v. aquæ, ʒss, every two hours.

7th day. Dyspnœa still more marked. Dr. W. Osler saw the case with me this A. M. Same treatment continued as heretofore. We anticipated tracheotomy, should breathing not improve. Was with patient most of the day. Toward evening the eyelids grew quite puffy. Dyspnœa increasing.

8th day. Summoned early to see patient, as his family thought he could not breathe much longer, with the same difficulty. With Dr. W. Ker Shea's assistance I opened the larynx without an anæsthetic. We had promised considerable relief for the dyspnœa from the operation, but to our extreme annoyance the amount of relief which we had anticipated was not forthcoming.

Drs. W. Osler and H. R. Wharton saw the patient with me again to-day. Although the tube which we used was a large one, Dr. Wharton thought that his largest and longest canula might give more relief; it was introduced, but the dyspnœa still increased.

9th day. At 6 A. M. patient died.

Professor Senator (*Berliner klin. Wochenschrift*) discusses the pathology of this disease, and I do not think we can do better than give his own words:

The term infectious pharyngitis, which should be supplemented by the word "primary," is used to indicate a rare and "perhaps always fatal" form of pharyngitis, not hitherto described in text-books of medicine. Two examples had occurred within the last few months, and a study of similar cases had revealed three more as having occurred within the last twelve years. In all these cases, reported at a meeting of the Berlin Medical Society on January 4th and discussed on January 18th, the disease affected previously healthy persons, without any apparent cause, and ran an acute course, ending in death in a few days. It began with cervical pains and dysphagia, accompanied by fever, often moderate, then followed by hoarseness or loss of voice and dyspnœa; finally, the sensorium was affected, and death quickly ensued.

The chief anatomical sign, found post-mortem, was diffuse purulent infiltration of the deeper tissues of the pharyngeal mucous membrane, the inflammation extending to the trachea and glands of the neck and, secondarily, to other parts, especially the gastric mucous membrane. Senator is of the opinion that many cases hitherto regarded as examples of acute œdema of the larynx were in reality cases of the above disease. Notably, in a case of Cruveilhier's, the pharynx was affected for a day or two before the larynx. The very rare "typical œdematous laryngitis," mentioned by Sir Morell Mackenzie as of septic origin, is also claimed as in all probability affording an example of the disease in question.

The spleen was generally enlarged in Senator's cases, and the kidneys, as a rule, showed parenchymatous inflammation. A peculiar exanthem appeared in one case.

The blood removed both before and after death had been carefully examined, but no specific microorganisms had revealed themselves in attempted cultivations; injections of which, as also those of fresh blood, had been harmless in rabbits. The streptococcus of Friedländer (erysipelas coccus) was certainly absent.

In the discussion which followed, Dr. Guttman argued that the cases were probably erysipelatous, in spite of the fact just mentioned, and referred to Ziemssen's *Special Pathology* and Eichhorst's *Pathology*.

Virchow leaned to Guttman's opinion, but also described other pharyngeal diseases which might mislead, especially metastatic abscesses in puerperal fever, suppurative pharyngitis accompanying acute gastritis and, in one case, mediastinitis; but Senator urged, in his reply, that there was no abscess in any of his cases, but a diffuse purulent infiltration, always beginning in the pharynx. The cause was absolutely unknown to him at present, but the system was very rapidly affected in a characteristic manner, and tracheotomy was of no avail. He had no doubt that a study of the subject, as revealed in hospital records, would disclose numerous examples of this disease, overlooked under the title of "acute œdema of the larynx."

Unfortunately we could not obtain a post-mortem examination in our case.

SULPHONAL.

By LUTHER LEE JOHNSON, M.D.,
of Garretsville, Ohio.

The literature regarding this new drug is extremely meagre. My experience with it is limited to its action upon one patient.

Mr. S., æt. forty-nine years, a lawyer, had suffered from insomnia for twenty years; as his legal business increased his trouble, he had to abandon his profession, and for years he has been existing on from one to three hours of sleep out of every twenty-four. He has been under skilled treatment and is as well informed regarding the physiological action of narcotics and hypnotics as the average practitioner of medicine. He had finally adopted the use of from one to two ounces of alcohol just before retiring for the night; this would produce from one to three hours of stupor (not sleep), and he had reached a point where suicide was contemplated.

I saw a notice of the new hypnotic in The Medical News, and, after some trouble, I obtained one ounce of the drug. I gave my patient twenty grains dissolved in very warm water; he became drowsy in fifteen minutes and retired, getting eight hours of quiet, peaceful sleep. This was six weeks ago, and Mr. S. is now a new man. He has resumed labor, and gets, every night, from seven to eight hours of refreshing sleep, notwithstanding the fact that the dose has been reduced to fifteen grains.

The patient has been watched closely, and I cannot see any injurious effects from the use of the drug.

He took thirty grains one evening and slept nine hours, and was very sleepy the next forenoon as a result of the increased dose. I think, by taking the drug for a time and gradually lessening the dose, the normal tendency to sleep will be reëstablished and my patient cured.

The drug costs four dollars per ounce. I find it soluble in twenty to thirty parts of very warm water; not so in cold water or alcohol. When dissolved it develops a bitter taste. I hope to hear from the profession regarding this new remedy, as I think it has a great future.

MEDICAL PROGRESS.

The Treatment of Traumatic Tetanus with Hydrobromate of Conine.—Demme, (xxiv. Report of the Jenner Children's Hospital at Rome), after having relieved a case of rheumatic tetanus by means of hydrobromate of conine, was led to try the remedy in a case of traumatic variety. Fourteen days before admission, a robust boy had received a lacerated wound upon the right index finger from a saw. There was malaise on the second day; on the seventh, there was extension of the muscles of the extremities, trismus, opisthotonos; the intelligence was clear; pulse, 100; temperature normal; respiration 24. One twenty-fifth of a grain of hydrobromate of conine were immediately injected every two hours, with the result that the attacks generally became less frequent and decidedly shorter. The patient was again able to sleep and to swallow. There was profuse secretion of sweat and saliva. After the patient had received nineteen grains of conine in forty-eight hours, severe attacks of suffocation occurred, necessitating the withdrawal of the drug and the institution of artificial respiration. At times, there were signs of collapse. In the course of the next three days, during which chloral hydrate was given instead of conine, the tetanic attacks again became more frequent, while occasional manifestations of paralysis of the diaphragm and of the intercostal muscles simultaneously appeared. Besides, certain spots of pneumonic consolidation, present on admission, progressed. Death occurred on the fourth day. The autopsy revealed inhalation pneumonia (Schluckpneumonie) of both lungs, probably existing prior to admission. Notwithstanding the unfavorable termination, the author recommends conine for further, carefully conducted experiments, as he maintains that probably after further new experience recovery may be attained in cases of a less acute character.—*Medicin. Chirurg. Rundschau*, August 1, 1888.

Substitute for Cod-liver Oil.—The following combination is highly recommended by Lamande for delicate stomachs which refuse cod-liver oil:

R.—Glycerin	. . . . .	℥x.
Tinct. iodi.	. . . .	℥ss.
Potass. iodidi	. . . .	grs. xij.—M.

Sig. A teaspoonful fifteen minutes before meals.—*Gazette Médicale*, August, 1888.

Test for Liver Diseases by the Saliva.—Fenwick, of London, gives his method of procedure as follows: "A solution of sulphocyanide of iron was prepared of definite strength, and was graduated by successive dilutions, so that each was only three-quarters of that above it. These were placed in the small flat bottles used by spec-

troscopists, each bottle being of equal thickness. He took his own saliva, which agreed in color with that formerly taken as normal (which was obtained by mixing the salivas of a number of healthy people together) as the normal standard, and the bottles were labelled + or —, according as they differed from it. Each of the salivas, when examined, was mixed with a definite quantity of the tincture of the perchloride of iron, filtered through cotton-wool and being placed in a spectroscopic bottle of equal thickness was carefully compared with the graduated strengths of the sulphocyanide of iron."

Five hundred patients in the hospital wards were thus examined, week by week, besides a large number of others who were subjected to a less rigid examination.

The results, to say the least, are very interesting. We have only space to refer to those obtained from thirteen cases of typhoid. In these, during the second week previous to convalescence (*i. e.*, the date at which the normal temperature was first permanently resumed) the amount of sulphocyanide was + ¾ (as the saliva was at this time in very small quantity, the total amount of the test present must have been very small), in the succeeding week it rose to + 2; in the first week after convalescence to + 2¾; in the second week to + 3¼; in the third to + 3¾; in the fourth to + 3; and remained high till after the seventh week of convalescence, in some instances rising to + 7. Another point of interest lies in the fact that where the duration of the febrile stage was short the increase of the salivary salt was less abrupt, but the duration of the convalescence, as shown by the increase of salt, was longer. Hence the amount of the salt secreted during the first week of convalescence should help us greatly in our attempts to foretell the length of this, and prove, therefore, a fact of high value. But we cannot help remarking that the statement that typhoid with a febrile stage of less than twenty-one days has a longer convalescence than the same disease when the fever exceeds twenty-one days is a very hard saying in the ears of any practical physician.—*Birmingham Medical Review*, August, 1888.

Tubercular Meningitis.—M. Lemoine, in the *Revue Special de l'Antiseptics*, speaks highly of the internal administration of iodoform in this disease, and urges its employment from the beginning of the attack. He has given as much as eight grains daily, for a period of three months, with the happiest results, no toxic effects being noted. It is administered in capsules, and he thinks the addition of a little ether of advantage in aiding its absorption.

Œdema from Antipyrin.—Grognot relates the case of a patient who took fifteen grains of antipyrin and in twenty minutes experienced marked dryness of the throat and nasal passages and great dyspnœa. The voice became husky and the face rapidly grew œdematous and pale. The œdema was especially noticeable about the lower jaw and under the eyes. These symptoms disappeared in half an hour, but returned on another occasion when antipyrin was again administered.—*Bulletin General Therapeutique*, August, 1888.

Smokers' Vertigo.—Decaisne, in an address before the Paris Academy of Medicine (*Deutsche med. Ztg.*, No. 51, 1888), ascribed the vertigo to which smokers are prone, to the contraction of the cerebral vessels, as it has been experimentally shown that nicotine stimulates the muscular layer of the vessels. The patient has a sensation of emptiness, a feeling as if he were about to lose consciousness. He makes the greatest effort to recover himself, but fails to do so. His movements are incoördinate and the senses receive the most deceptive impressions. Everything seems to revolve about the patient, and when he closes his eyes, his body seems to participate in this movement.

Decaisne thus summarizes the results of his twenty-five years' experience: 1. Of sixty-three persons from twenty-nine to sixty-six years of age, forty-nine or fifty were sixty-six years old. 2. More than half manifested, besides the vertigo, digestive disorders, alternate constipation and diarrhœa, dyspnœa, increased uninary secretion, sleeplessness and palpitations; a third showed intermittent pulse and angina granulosa; some emphysema, aphtha, amblyopia and bloody expectoration. 3. Thirty-seven observations refer to smoking upon an empty stomach; in these the vertigo almost always appeared in the morning. 4. In one-third of the cases, the occurrence of the vertigo was associated with suppression of the perspiration and marked diminution of the urinary secretion. 5. The symptoms of smokers' vertigo were several times confounded with those of cerebral congestion and even with those of cardiac disease. The symptoms of congestion are explained by the contraction of the vessels giving way to relaxation. 6. The general treatment consists in the absolute withdrawal of tobacco and, in some cases, in the regulation of the mode of living. To this Decaisne usually adds laxatives, warm baths, magnesia and bitter tonics. On twenty-eight occasions, in the progress of the attack, he has made subcutaneous injections of ether, which overcame the vertigo in six or seven minutes. Seven of thirty-nine persons who smoked on an empty stomach, thirty-three had the vertigo disappear immediately upon smoking only after taking food. —*Medicin. Chirurg. Rundschau*, August 1, 1888.

Creolin in Purulent Ophthalmia and Gonorrhœa.—Acute and chronic purulent ophthalmia is satisfactorily treated, according to Dr. Margaritti, by means of a solution of creolin of the strength of 1 in 400. This is instilled into the eyes and used for moistening compresses which are applied externally. At first a burning sensation is experienced, but after about five minutes this subsides and the eyes feel much more easy, and the patient is able to open them without difficulty. Gonorrhœa which has resisted other treatment has frequently yielded in Dr. Margaritti's practice to irrigations, twice daily, with a solution of creolin of the strength of 5 to 8 per cent., administered through a hollow sound.—*Lancet*, August 18, 1888.

Cocaine in Ophthalmic Surgery.—There have been published a number of cases of corneal opacity following upon cataract operation in which cocaine had been used. Wicherkuwicz (*Allg. Wiener. med. Ztg.*, No. 1, 1888) ascribes the complication to the too liberal use of strong solutions; he, therefore, applies a three to five per cent. solution but twice shortly before the operation and has since met with no opacities. Cocaine diminishes the intraocular pressure, and the frequent instillation may, after the operation, induce such a diminution that the

margins of the wound do not approximate, in consequence of which the nutrition of the cornea suffers, as evidenced subsequently by an opacity of the parenchyma. For the same reason he makes incisions and performs iridectomies without cocaine, or he confines himself to a single instillation of a weak solution. The author recommends the subcutaneous use of cocaine in the removal of small swellings, in ectropion, ptosis and trichiasis operations, etc. He makes, antiseptically, four punctures in the region of the area of operation, and employs half a syringeful of a three to five per cent. solution, the needle being introduced obliquely and to a sufficient depth beneath the skin. As the anæsthesia from subcutaneous injection occurs later than that from the local use, it is advisable to make the injection ten to fifteen minutes before the operation.—*Medicin. Chirurg. Rundschau*, August 1; from *Breslauer ärztl. Zeitschr.*, No. 11, 1888.

Vapor of Ipecacuanha Wine in Bronchitis.—According to Morrell, of London, great benefit is derived in chronic bronchitis from the inhalation of the vapor of wine of ipecacuanha. He has used it in fibroid phthisis and obtained great amelioration, even when no constitutional means were employed. The vapor should be inhaled when hot and the patient kept in a warm room for some time after. It may be used for ten minutes at a time, three or four times a day. In hoarseness, due to acute congestion of the vocal cords, it is especially serviceable. —*L'Union Médicale.*

Accidents caused by the Exploring Needle.—Dr. Biggs, of New York, draws especial attention to the fact that the exploring needle is not a harmless instrument. He mentioned cases of pneumo-thorax caused by it, some of which were fatal, and draws the following conclusions:

1. The employment of the exploring needle is not infrequently attended by considerable danger, and a number of deaths have directly resulted from its use.

2. The indiscriminate, careless and routine resort to exploration with a needle should be condemned. This procedure should not be resorted to without careful consideration of the conditions obtaining in each case and the results that may follow the puncture. The site for the puncture should be thoughtfully chosen, the puncture carefully made with complete antiseptic precautions and the smallest needle that will answer the purpose employed.

3. The puncture of collections of fluids with tense walls in relation with serous surfaces should be, as far as possible, avoided, and, if it is resorted to, sufficient fluid should be withdrawn to relieve the tension upon the walls of the sac. In many cases certainly an exploratory operation would be attended by less danger.

4. In the introduction of the needle into deeply seated infectious matter the nature of the intervening tissue should be carefully considered.

5. The needle before use should be always thoroughly disinfected, preferably by heating in the flame of an alcohol lamp or a Bunsen burner.

6. The skin where the puncture is to be made should be rendered thoroughly aseptic by first scrubbing with soap and water and then washing with an antiseptic solution.

7. The dangers attending the use of this valuable adjuvant in diagnosis should not in the slightest interfere with its employment in properly selected cases, where due precautions are observed as to its use.—*New York Medical Journal*, August 18, 1888.

Effect of Nicotine on the Female Generative Organs.—Recent investigations in Paris tend to show that the women working in tobacco factories are considerably affected by the nicotine. Those becoming pregnant habitually abort and the menstrual periods are very irregular. Nicotine, being a motor-excitant, has a direct action on the uterine walls.—*Journal de Médecine*, Aug. 1888.

The Technique and the Value of Mucous Membrane Transplantation.—Wölfler (*Congress of Surgery*, xvii.) states that his method of repairing deficiencies of the mucous membrane, after the removal of cicatrices, is of equal importance to Thiersch's method of skin grafting, in the healing of wounds of the cutaneous surface. By this means, it has become possible on a more extensive scale than heretofore, to remove cicatrices from the mucous membrane of the œsophagus, of the buccal cavity, of the rectum, of the urethra, etc. The author applied grafts in a manner similar to that followed in skin grafting, obtaining his tissue, however, from the mucous membrane of prolapsus uteri, prolapsus recti, etc.; later on, he used the mucous membrane of the frog's stomach, of the rabbit's bladder, etc.; these proved entirely efficient. In this way the author was enabled, in three cases of impassable stricture of the urethra, after excision of the obstructing stricture, to create a new mucous membrane. He also used this method, with good results, in two cases of blepharoplasty, in one case each of rhino- and meloplasty. Thiersch commends this measure as a most important advance.—*Medicin. Chirurg. Rundschau*, August 1.

Treatment of Leukæmia.—The *Zeitschrift f. klin. Medicin.*, Band XL., Heft 122, contains a report by Sticker of the recovery of a case of leukæmia by oxygen treatment.

The patient was in good circumstances, and up to his twenty third year enjoyed sound health. He then began to suffer from indigestion, a sense of oppression on the chest, hoarseness now and then and rapidly increasing weakness. This condition was succeeded by frequent and copious epistaxis and urine muddy on standing. In about two years his body commenced swelling, and the weakness, difficult breathing, want of appetite and other usual symptoms, increased in severity. The spleen enlarged, forming a tumor; the liver got bigger and more resistant than normal; and the acute pain caused by percussing the lower half of the breast bone pointed to leukæmia of the marrow. An examination of the blood left no doubt as to the diagnosis.

The change seemed magical. The pallid, weak, ill-nourished, œdematous individual, who with great difficulty trailed himself into the hospital, leaning on a staff, left the ward in four months with red cheeks and lips, upright and able to walk a good few hours a day without fatigue. But the improvement was of short duration. In a few weeks he lost his appetite, his skin became pale, his feet swelled and he passed the greater part of his time in bed. The epistaxis returned. He got rapidly weaker. Bronchitis set in, the labyrinth of the ear be-

came affected, delusions of sight and hearing plagued him day and night, and in three months from the return of the disease he died thoroughly exhausted.

The most interesting point in connection with the case is the speedy partial recovery and swift relapse. The marked improvement in the symptoms is attributed, by the author, to the inhalation of oxygen. He carefully eliminates all the other factors, at least, to his own satisfaction, and thinks the inhalation of oxygen the cause of cure, whatever may be the explanation. The theory of action he gives is rather fanciful. The white corpuscles, lying thickly in the lung capillaries, give oxygen to the red and thus are never saturated. If these white corpuscles receive oxygen in a concentrated form, both they and the tissues receive enough of oxygen for healthy chemical work. The tissues oxidize as they ought, and the white corpuscles themselves get more vigorous constitutions, and are thereby enabled to transform themselves into red blood-corpuscles.

Another theory, however, is possible. Chlorine gas, though in a very dilute form, was inhaled along with the oxygen (owing to the method employed in getting the oxygen). Might not the chlorine also have some part to play in the cure? Experiments in this direction would be interesting.—*Medical Chronicle*, August, 1888.

Treatment of Septicæmia.—In a case of septicæmia occurring during a pyopneumothorax, where the patient presented the gravest symptoms of poisoning, Moizard obtained a cure by injecting in the pleural sac an ounce of an antiseptic solution whose formula is the following:

R.—Tinct. iodi. }
Alcohol., } . . āā ℥ij.—M.
Liq. potass. iodidi (1 : 10) }

With the exception of a slight and transient pain, the patient experienced no suffering and made a rapid recovery.—*L'Union Médicale*, August 11, 1888.

Abnormal Growths on the Skin.—Such formations as warts and horny excrescences are treated very successfully in the following manner: The growth and surrounding tissue is first cleansed with a solution of boric acid, and then thickly covered with crystals of pure salicylic acid over which a band of lint is placed, the whole being enveloped in gutta-percha dressing. At the expiration of eight days the coverings are removed and the growth found to be shrivelled and completely detached, the underlying skin showing no trace of hemorrhage or cauterization.—*L'Union Médicale*, August, 1888.

Antipyrin for Hemorrhoidal Ulcers.—Schreiber (*Therap. Monatsh.*, July), acting upon a suggestion of Neudörfer, used, with success, antipyrin for hemorrhoidal ulcers, after alum, zinc, morphine, cocaine and belladonna had failed to give permanent relief. The remedy was finely powdered and applied to the injured surface. The contact caused slight pain, lasting about thirty seconds. The powder distributed itself and in ten minutes the surface became moistened. By this time, the pain was markedly diminished. The patient improved. The application was followed by a quiet night and the itching was reduced to a minimum. The drug was first applied once daily, then twice daily. After twenty days, the ulcers had cicatrized. They have not since reopened, nor had new ones formed.

"The statements of Neudörfer that the analgesic and antiseptic properties of antipyrin are more important than its antipyretic, and that it deserves the synonyms of anodynin and asepsin are confirmed by this case."

Sulphurous Acid Fumigation in Pertussis.—Dr. Manby speaks highly of this plan of treatment. The children are in the morning put into clean clother and removed elsewhere. All their clothes and toys, etc., are brought into their bed-room and sulphur is burnt upon a few live coals in the middle of the room. The fire is allowed to remain in the room for five hours, and then the windows and doors are thrown open. The child sleeps in the room the same evening. About 25 grammes (a little under an ounce) of sulphur to every cubic metre may burnt; this is equivalent to rather more than 10 grains per cubic foot. The additional precautions was taken of having the day-room fumigated in a like manner during the night; the children practically lived in an atmosphere of diluted sulphurous acid gas for some days, while in several cases I had the process repeated at the end of a week.

In every instance, without exception, my observation leads me to look upon the method as a practical cure for whooping-cough. There is no doubt about it; mothers and nurses all agree with me that an immediate improvement is effected. Cough is lessened in frequency, expectoration of the thick clogging mucus much facilitated, paroxysms lessened in violence and sickness after them, as a consequence, scarcely known. The children pick up quickly, and in no case has the caugh lasted in its form of reduced violence more than a fortnight after the treatment commenced; it gradually but surely abates and ceases. I have had no specially severe bronchitic or pneumonic complications to deal with in the twenty or more cases in which I have applied the treatment, but I do not think I should desist if such complications existed.—*Practitioner*, August, 1888.

Eucalyptol and Idoform in Skin Diseases.—In attempting to prove the value of these drugs, administered together, hypodermatically, in the treatment of lung diseases, Maison has found that they are of especial value in cutaneous affections. They seem to be especially indicated in the squamous variety. In one case of ichthyosis he obtained great improvement. The dose of iodoform should not exceed two grains, given once in three days.—*Journal de Médecine de Paris*, August 12, 1888.

The Relations between Deafness and Albuminuria.—Gelli (*Semaine Médicale*, No. 13, 1888) reports the case of a patient, under treatment for paralysis of the right vocal band, suddenly affected with total deafness, a careful examination of the ear showing nothing abnormal; an analysis of the urine, however, disclosed a small amount of albumin; eighteen months later, the patient died, with symptoms of chronic Bright's disease, having never recovered the power of hearing. The case illustrates the fact that sudden, complete and incorrigible deafness may set in, without any peripheral injury of the ear at all. Under such circumstances, the attention of the physician should always be directed to some existing general dyscrasia. As to the genesis of the albumin-

uria in his case, Gellé believes there was a connection with the paralysis of the vocal band, which in its turn was due to a paralysis of the recurrent laryngeal nerve by a mediastinal tumor. The author believes that the inflammatory irritation of the recurrent exerted a reflex influence upon the nervous centres with bulb. Henriot, from a case in which diabetes mellitus existed in a patient with a tumor in the course of the vagus nerve, believes such influences as pathogenetic of diabetes mellitus, too.—*Medicin. Chirurg. Rundschau*, August 1; from *Monatsschr. F. Ohrenheilk.*, No. 6, 1888.

Paquelin Cautery in Epididymitis.—According to Dr. Brewer, excellent results are derived from the use of the Paquelin cautery. He has employed this method in forty-six cases, and in two cases only was it necessary for the patient to remain in bed after the first application, and in one the real cause of the enforced rest was a coexisting cystitis. The details of the procedure, according to Dr. Halsted, who first suggested it, are as follows: The cautery point is heated to a white hot temperature, and the surface of the skin overlying the affected organ is then lightly touched with the cautery. The operation requires only a few seconds, and need not be more than moderately painful. A dressing of iodoform ointment is then applied, and the patient is instructed to wear a suspensory bandage. Instant relief from pain is said almost invariably to follow the employment of this treatment, and the patient, as a rule, is able to be up and walk about in comparative comfort. The author adds that he has also found that marked relief from pain in gonorrhœal rheumatism can be obtained by a similar use of the cautery and iodoform ointment.—*Medical Press*, August 1, 1888.

Varieties of Diphtheria. Remarks upon Treatment.—During an epidemic of diphtheritis in Hedemarken, Bryhn (*Norsk Magaz. for Largeoid.*, 1888, No. 5) observed several cases of gangrenous erysipelas, clearly originating in diphtheria. In an isolated village in which a physician was treating a child with an extensive diphtheritic deposit in the fauces, a girl in a neighboring house, who had a couple of ulcerated fingers, was found to have an erysipelatous swelling on one labium majus, with a black crust between this and the original crease. Her throat was not involved. Later on, two sisters of the first patient were attacked with ordinary diphtheria. It transpired that the mother of the girl with gangrenous erysipelas of the vulvæ had had a sore breast two weeks before, and that the girl with diphtheria had washed linen from the neighboring house, with which the wound was covered. The woman had elsewhere nursed a child which it was said had died of diphtheria. Four others visited the sick child. One, at first had a red swelling on one finger and, later, symptoms of laryngeal diphtheria; another, a gangrenous spot upon the thumb, without other diphtheritic deposits.

In the treatment, the author recommends a warm twenty per cent. solution of boroglyceride, applied to the places on the throat from which the membrane has been previously removed, Besides a gargle consisting of fifteen parts of benzoate of sodium, five of oil of eucalyptus and seventy-five of water is used, which in appropriate cases may be employed to wash the nasal cavity. Internally, five to fifteen drops of a spirituous solution of perchloride of iron, in a teaspoonful of water, are given every two hours. The treatment often leads to a successful result in three or four days, even in severe cases.—*Medicin. Chirurg. Rundschau*, August 1.

Physostigma in Tetanus.—A case of transmissable tetanus, occuring in a lad of nineteen years, and cured by use of physostigma is reported in the *Lancet* for August 18.

The patient received a lacerated wound on the outer side of the right hand which was dressed antiseptically and did well for about ten days. At the end of that time he complained of a sore throat and stiff neck and tetanus rapidly developed. The angles of the mouth were drawn up and the masseters very rigid. Mastication impossible. One grain of the extract of physostigma was given every hour, subsequently increased to two grains hourly. Under the treatment the spasms grew less and the patient ultimately recovered.

Diabetic Coma.—On the hypothesis that this is largely due to oxybutyric acid, M. Lépsine treats it with alkalies. He saturates a quart of water with citric acid and adds an ounce of bicarbonate of sodium. The frequency and dose to be regulated by the severity of the symptoms. Under this treatment the oxybutyric acid disappears from the urine and other untoward results are avoided.—*Gazette Hebdomadaire des Sciences Méd.*, August, 1888.

Oxalate of Cerium for Sea-sickness.—Of all remedies which have been recommended for sea-sickness, Gardner (*Allg. med. Centr. Ztg.*, No. 53) has found none so well adapted as oxalate of cerium. He recommends doses of from nine to eighteen grains, in a tablespoonful of water, every three hours. In these doses the remedy is well borne. Much smaller doses were used, but they failed. In a case of aggravated indigestion he gave the patient five doses of five grains each, at intervals of two hours. In a severe attack of cardialgia the patient took eighteen grains and secured relief. In another case, one of gunshot wound of the abdomen, persistent and obstinate vomiting set in, probably from injury of some branches of the solar plexus. Nine grain doses afforded great relief. The author has, besides, used the remedy in hundreds of cases of migraine, nausea and vomiting of pregnancy, etc., with the best results. For adults average doses of nine grains are requisite. In this amount he has found the drug useful for the harassing cough of phthisis. The mode of action is not certainly known, but it is believed to depend upon a sedative influence upon the vagus and sympatheticus nerves. Untoward action has not been observed even when twenty-two grains were given in twenty-four hours.—*Wiener med. Presse*, No. 30, 1888.

Volatile Alkaloids of Cod-liver Oil.—Among the six alkaloids of cod-liver oil, Gautier and Mourgues have found that butylamine increases the functions of the skin and kidneys, and in large doses produces stupor and vomiting.

Amylamine increases the urinary secretion and the reflex activity, and in large doses induces convulsions.

Dihydrolutine is more poisonous and diminishes the general sensibility. Large doses given to quadrupeds cause a profound depression, broken by periods of excitement and paralysis of the rear limbs.—*L'Union Médicale*, August 11, 1888.

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SATURDAY, SEPTEMBER 8, 1888.

PROPHYLACTIC MEASURES AGAINST TUBERCULOSIS IN CATTLE.

AT the recent French Congress for the study of tuberculosis, certain propositions were presented by the President, M. Chauveau, and adopted, which relate to special prophylactic measures necessary to be observed in dealing with the contagious diseases of domestic animals, especially those which may be transmitted to man. The French government, upon the adjournment of the Congress, with commendable alacrity, adopted regulations suggested by the action of the Congress, which are to be enforced for the prevention of the transmission of tuberculosis from animals of the bovine species. Cattle are to be placed under the supervision of sanitary veterinary surgeons, and animals found to be tuberculous are to be isolated and sequestrated, and when killed must be killed in the presence of the inspector, who must make a post-mortem examination. Meats obtained from such animals, when the lesions are definitely ascertained, are excluded from sale, and are not even to be fed to animals, but must be destroyed. The sale of milk from tubercular cows is forbidden, though after being boiled it may be fed to animals.

In the census report of the United States for 1880, pulmonary consumption stands first in point of frequency upon the list of deaths from all diseases. This great enemy of the human race is steadily slaying its thousands, without popular comment or without inciting any well-directed effort to limit its progress. The appearance of yellow fever, cholera or smallpox in a community throws the country into alarm, and no effort is spared to restrict their spread. Yet the deaths from these diseases are inconsiderable in comparison with those from tuberculosis. Some years ago the National Board of Health started investigations of the diseases of domestic animals liable to be transmitted to the human race, and the inquiry gave promise of tangible results, but it terminated with the existence of the Board. The general government is now pursuing an inspection of cattle with the view of detecting tubercular animals and preventing the spread of disease among the herds; but this service is based upon a law limited in its provisions and which does not compare in scope and completeness with that just formulated by the French government.

Tuberculosis being recognized as a contagious disease and in all probability transmissible from animals of the bovine species to man, it is the duty of the State or general government to enforce stringent measures directed against the spread of this disease, and forbid the sale or use of meats from animals affected by it. As it is probable that infection is conveyed by alimentation, particularly by milk, the sale and use of milk from tubercular cows should be forbidden. In the absence of such a regulation, or its enforcement, safety lies in the practice of boiling the milk before using it.

ARMY MEDICAL EXAMINING BOARD.

SINCE the notice in our issue of August 11th, that this Board would be convened in New York on October 1, 1888, we have received several letters asking for further information in regard to it. It is very natural that those at a distance who are thinking of presenting themselves should desire to know something of the scope and requirements of that examination, before incurring the expense of a long journey. We are glad to be able to inform our readers on the subject.

Some conditions preliminary to the examination were given in the notice above referred to—these should be borne in mind. The physical examination comes first and, we are told, is rigid. The hardships and exposure incident to the military service require a vigorous frame, robust health, the full use of all the senses, and a vitality unimpaired by hereditary tendencies or by excesses.

The preliminary examination is designed to ascertain if the candidate has such general knowledge as

will enable him to associate with educated people with credit to the medical department. It includes arithmetic, geography and history, especially, of the United States, and general literature. A more extended and varied knowledge is much desired, but these are essential. The candidate's knowledge of chemistry and physics must be such as to furnish a good foundation for the more strictly professional branches, such as physiology and hygiene, which, it will be conceded, depend greatly upon them.

The professional branches examined on are those usually reckoned as such in medical colleges, but hygiene is given more attention than it often receives in the schools. The necessity for a knowledge of this subject for military medical men, whose duties are conspicuously those of sanitary officers, is obvious. An intimate acquaintance with the so-called specialties is not required, but the candidate's knowledge of them must be sufficient to enable him to recognize cases that may occur in his service, often isolated and distant from opportunities for consultation. He should be, we take it, a well-rounded general practitioner.

The candidate's knowledge of Latin must be sufficient to enable him to write a prescription correctly, and to use intelligently the technical terms used in medical science. Certainly less could not be expected. More extended acquaintance with the classics, a knowledge of the modern languages and of special branches of science, though greatly desired in a candidate, are not essential to success. Their possession does, however, give advantage in relative standing among those equally well prepared in medicine and surgery.

Preference is always given to applicants who have had experience in practice, especially in hospitals. We understand that the examination, both preliminary and professional, is largely a written one, but that it always includes examination at the bedside and in operating on the cadaver.

In conclusion we can confidently assure all who propose to present themselves that this examination is thoroughly impartial. Every man is judged by his merits alone, and no political, personal or social influence can affect the action of the Board.

On another page we present the communication made by M. Pasteur to the Academy of Sciences of Paris concerning the alleged discovery by Dr. Gamaleïa, of Odessa, of an attenuated virus which confers immunity from cholera. In France this is claimed as a brilliant confirmation of the two great principles of the experimental method of Pasteur, that of progressive virulence, and of chemical vaccine. Dr. Gamaleïa was a student for many months in Pasteur's laboratory and is entirely familiar with the mode of preparation of virus for vaccination, and particularly of that of hydrophobia, as practised there.

The arrangements for the First Congress of American Physicians and Surgeons, which is to meet at Washington on the 18th, 19th and 20th of this month, are complete, and the entire programme, covering a quarto-pamphlet of forty-eight pages, has just been issued. The indications are of a large representative gathering, and we understand that a number of gentlemen from abroad have indicated their intention of participating in the meeting. The list includes Sir Spencer Wells, Sir Andrew Clark, Sir William MacCormac, Drs. W. O. Priestly, William Ord, Graily Hewitt, Grainger Stewart, Mr. Lawson Tait, Mr. Victor Horsley, Mr. Thomas Bryant, Mr. Thomas Annandale, Professors Ferrier, Esmarch and Gerhardt, Drs. Reverdin and Rafael Lavista.

The Congress will transact no business during the meeting, not even electing officers. Dr. Billings has been selected by the Executive Committee to preside over the Congress, and the President of the next Congress will be selected in a similar way. The object of the meeting is solely the discussion of topics relating to medical science, and the detailed programme gives promise of a most instructive and successful meeting.

The Mississippi Valley Medical Association will meet in Pickwick Theatre, Jefferson and Washington Avenues, in St. Louis, September 25, 26 and 27, 1888, two weeks later than first announced.

This date was selected in order that the cheap railway rates during the Carnival season of St. Louis might be made available.

The Editorial Committee of the New Austrian Pharmacopœia has completed its labors. The new work will probably be published during the course of this year and go into operation at the beginning of the next.

A case of rabies in the horse is reported to have occurred at Brooklyn, New York; the attack supervening upon the bite of a dog known to be rabid,

after an interval of incubation of thirty-six days. After the full establishment of the disease it was observed that the frenzy was especially prompt and characteristic, at the sight of water or some other glittering object. The horse became utterly unmanageable, kicking and plunging, and snapping violently with the jaws, two or more of the teeth being broken by the violence of this spasmodic action; he occasionally emitted paroxysmal outcries, somewhat similar, it was thought by some, to the bark of a dog. In the end, it became necessary to destroy the animal by shooting in order to abbreviate his agonies. The case was seen by numerous experienced veterinarians of the locality, who were unanimously of the opinion that the disease was quite properly described as equine hydrophobia, the causation of which was the bite of a mad dog, the symptoms declaring themselves at the end of the fifth week.

DR. JAMES E. REEVES, of Chattanooga, formerly of Wheeling, West Virginia, will make an inspection of the State and municipal quarantines along the southern border, under instructions from the State Board of Health of Tennessee.

LEWIN (Berlin), Kaposi (Vienna), Pick (Prague) and Neisser (Breslau), are taking the initiatory steps for a Dermatological Congress to be shortly held at Berlin.

PROF. LEHMANN has declined the proffer of the Chair of Hygiene at Giessen, as the faculty and board of directors of the University of Würzburg have acceded to his request for the establishment of an institute of hygiene.

DR. SAHLI, of Berlin, has been made ordinary professor and director of the medical clinic at Berne, in place of Prof. Lichtheim, who has been called to Königsberg.

AT an Annual Meeting of the New Brunswick Medical Society held at St. John, in July, a paper on Leprosy was presented by Dr. G. A. Hetherington, who has recently inspected the lazaretto at Tracadie. He exhibited photographs, taken by himself, of the hospital and its inmates. He stated that, while the larger proportion of lepers in the province find their way to the lazaretto, there are still a considerable number of them at large in the district along the Bay of Chaleurs, and he recommended that the necessary steps should be taken to have them confined to the hospital.

THE Mayland Institute of Science, Art and Literature has offered the following prizes upon medical subjects, for which others than Italians may compete: 1. First Prize Cagnola ($300 and a gold medal worth $100): The history of hypnotism; a critical investigation of all that pertains to the subsubject, and a record of private experience. To be received until April 30, 1889. 2. Second Prize Cagnola ($300 and a gold medal worth $100): A thoroughly supported explanation of the efficacy of pellagra, or upon the nature of the miasmatic and contagious poisons. To be handed in by December 31, 1888. 3. Prize Fossatis ($800): Upon the embryogeny of the nervous system or of a portion of it in mammals, with illustrations of original investigations. To be sent in by April 30, 1890. Particulars may be had from La Segreteria del R. Instituto Lombardo di Scienze, Lettere ed Arti, Pala 770 di Breza, Milano.

A BACTERIOLOGICAL laboratory will be established at the University of Königsburg, in conjunction with the pathologico-anatomical laboratory. Prof. Baumgarten is expected to assume charge of the new department.

REVIEWS.

PTOMAINES AND LEUCOMAINES; OR THE PUTREFACTIVE AND PHYSIOLOGICAL ALKALOIDS. By VICTOR C. VAUGHAN, Ph.D., M.D., Professor of Hygiene and Physiological Chemistry in the University of Michigan, and Director of the Hygienic Laboratory; and FREDERICK G. NOVY, M.S., Instructor in Hygiene and Physiological Chemistry in the University of Michigan. 8vo. pp. 316. Philadelphia: Lea Brothers & Co., 1888.

WE have perused with much pleasure this well-written volume, which discusses subjects of great practical and scientific interest to the physician, and especially to the toxicologist and pathologist. The discovery of the ptomaines has opened a new era in the toxicological chemistry of the alkaloids, and has very materially modified medico-legal investigations in cases of alleged poisoning by these bodies. It was formerly a comparatively easy task for the expert to determine, in a dead body, the presence or absence of one of the alkaloids, by the recognized chemical and physiological tests; but it is now vastly complicated by the circumstance that there may be present, in the manipulation, one or more of these most inconvenient *ptomaines*, which, from their close resemblance to the alkaloid sought for, may very seriously embarrass the result. Fortunately, however, the difficulty of the diagnosis is not insurmountable, and the proper methods to be adopted are detailed in the present work.

The chapter describing "Foods containing Poisonous Ptomaines" is full of practical suggestions. In it the authors show that those obscure, and hitherto unex-

plained cases of narcotic-irritant poisoning arising from eating certain articles of food supposed to be perfectly innocent, such as milk, ice-cream, cream puffs, canned provisions and cheese, are in reality due to poisonous ptomaines, generated under peculiar conditions by specific bacilli acting on the complex organic material. From all the above mentioned articles of food distinct ptomaines have been extracted. Among others is one of much interest, discovered by Professor Vaughan in cheese, in 1884, and named by him *tyrotoxicon;* and subsequently also found in certain samples of milk and ice-cream which had produced poisonous, and even fatal results.

Another interesting phase of this subject is "The Relation of Ptomaines to Disease," which is very clearly stated by the authors. The bacterial origin of infectious diseases is now pretty generally admitted; but the theories of the bacterial agency have not been so thoroughly settled. The idea advanced by our authors seems to us to be the correct one,—that the disease is not caused by the direct action of these microörganisms on the blood, nor by "their consuming the proteids of the body," but by the generation of one or more ptomaines—chemical poisons—which, by absorption into the blood, affect the great nerve-centres, the heart and lungs and thus produce the characteristic morbific effects. Each disease is believed to have its own special pathogenic bacillus, which is supposed to be capable of generating its own characteristic poison or poisons.

That this is not mere theory is shown by the fact that the bacteria of different disorders will furnish, by pure culture in various materials, these peculiar ptomaines, which, when injected into different animals produce very many (though perhaps not all) of the characteristic symptoms of the particular disease. This has been absolutely proven in the case of the bacilli of anthrax, cholera, typhoid fever and tetanus, each of which has furnished, by culture, and subsequent extraction by chemical means, its own peculiar ptomaine or ptomaines. These facts, of course, open up a wide field to the pathologist; and also, we may hope, will suggest a useful, practical one to the therapeutist.

The "Modes of Extracting Ptomaines," together with their "Chemistry," are fully and ably discussed in two separate chapters; but these do not specially claim our notice here.

The two chapters on "The Chemistry and Pathological Importance of the Leucomaines" our space will permit us to notice only very briefly.

By *leucomaines* are understood "those basic substances which are found in the living tissues, either as the products of fermentative changes, or of retrograde metamorphosis." With some of these bodies we have been familiar in the past—such as creatine and creatinine, together with their derivatives, as also with the uric acid group. The researches of Gautier, Selmi and other investigators have revealed the existence of many other similar leucomaines, procured from the urine, muscular flesh and other animal, and even vegetable tissue. Among the most interesting of these, and of special importance to the sanitarian and physician, are the poisonous products obtained from expired air, as lately shown by the experiments of Brown-Séquard and R. Wurtz.

The *origin* of these leucomaines is undoubtedly to be ascribed to the metabolic changes constantly going on in the living body, by which the complex proteid molecule is split up into successive products, until it reaches its final conversion into urea, ammonia, water and carbonic acid. This incessant metabolic change appears to be an essential condition of organic life; and the elimination of the numerous resulting poisonous leucomaines from the economy, or their destruction or neutralization within the economy, seems to be amply provided for in the healthy organism; whilst any disturbance of its normal, healthy activities is sure to be followed by disease, in consequence of the retention of these morbific products.

We may congratulate the authors of this work on its intrinsic merits, and on its mode of execution; and at the same time we can cordially recommend it to the study of the profession.

SOCIETY PROCEEDINGS.

CONGRESS ON TUBERCULOSIS OF MAN AND ANIMALS.

Held in Paris, July 25 to 31, 1888.

(*Specially reported for* THE MEDICAL NEWS.)

(Concluded from page 248)

JULY 31ST.—MORNING SESSION.

EARLY DIAGNOSIS OF PULMONARY CONSUMPTION.

M. ESPINAY CAPO, of Madrid, said that one of the important points to consider in the diagnosis, is the study of the development of the thorax. If the circumference of the thorax in the mammary line is not half the height of the individual between eighteen and twenty-four years of age, this is sufficient to establish a diagnosis; if the circumference of the chest at the mammary line is not above thirty inches, we must suspect diminished pulmonary capacity, also if the distance between the two nipples is not more than seven or eight inches, if the xiphoid circumference is not above thirty-two inches, we can suspect a more or less advanced tuberculosis. He also thinks that the sphygmograph can help us very much, and believes it affords one of the surest diagnostic signs; the first signs of tuberculosis have a certain influence on the descending line of the sphygmogram, on the dicrotism.

EXPERIMENTS ON ANIMALS IN THE DIAGNOSIS OF SCROFULO-TUBERCULOUS LESIONS OF MAN.

M. ARLOING called attention to the case of a young lady, of most healthy appearance, who suffered from a suppurative adenitis; rabbits were inoculated with the pus coming from the lesion and died tuberculous; the young lady also died later on from a miliary tuberculosis. He finds also a difference, when inoculations are made from attenuated tubercular adenitis in different animals, in some instances pus obtained from these lesions produced tuberculosis in guinea-pigs but not in rabbits; the same results he had obtained from inoculation made with pus from a middle ear suppuration, and yet all these patients have shown no trace of tuberculosis.

In another series of experiments, inoculations were made on rabbits and guinea-pigs from pus obtained from

an axillary suppurating adenitis, while no other symptoms of tuberculosis could be found. Both rabbits and guinea-pigs died of the disease, and the patient, also, later on from tubercular meningitis. He has been unable to establish any difference between the two viruses used; he thinks that there is only a different grade of virulence of the same virus, which is not due to different micro-organisms.

These diagnostic inoculations enable us to make out whether or not we have to deal with tubercular lesions, their degree of virulence, etc.

As regards local tuberculosis, out of seventeen patients eight were diagnosed as scrofulous, nine as tuberculous. Out of these eight scrofulous patients, who were diagnosed as such, inoculation in rabbits having given negative results, four never returned for examination, probably on account of having been cured by the operation, two kept well and two others remained questionable as to success. Of the nine tuberculous who were considered as such, having produced general tuberculosis in rabbits, two died, four presented suppuration eighteen months later, two never returned, one is cured or much better.

M. DAREMBERG has produced local tuberculosis in old rabbits and general tuberculosis in young rabbits, with a culture that had remained for some days at the temperature of the room.

M. LELOIR attached great importance to the mode of inoculation. He having introduced fragments of lupus under the skin of a rabbit he had negative results; but having placed these fragments in the anterior chamber of the eye, he succeeded. The rabbit being an expensive animal, he experimented on guinea-pigs, and found that inoculations of lupus under the skin produced no results; while those inoculations made directly into the peritoneum gave general infection at a later period—several months—four to five. When his inoculations were made at the same time in the peritoneum and skin, by placing a fragment of lupus in the peritoneum, which came out at the wound with a piece of epiploon, he obtained local tubercular lesions of the skin. This method of inoculation he has called "hypodermo-epiploid insertion." The development of the bacilli is probably accounted for by the great vascularity of the epiploon.

M. NOCARD does not believe that tuberculosis and scrofulosis are two different diseases, he thinks they are derived from the same microbe, which is attenuated in one case, virulent in the other; perhaps also the very limited number of bacilli in scrofulosis explains their comparatively mild action as regards the lesions, which contain them in great quantities.

ON INNATE AND ACQUIRED TUBERCULAR OPPORTUNITY.

M. LANDOUZY said that we all know that certain individuals are born with all the attributes necessary to become consumptive; these constitutions we ought to study closely, for they are important in a prophylactic as well as in a therapeutical point of view. He has already described a type, which he has called "Venetian," and prone to tuberculosis; this type is characterized by very thin, smooth, white skin, hairs of a red hue, blue eyes, and quite stout; these subjects must not be allowed to live in contact with tubercular patients, for if the disease places it hands on such persons it will prove to be particularly severe.

As regard the acquired opportunity to tuberculosis, in the first rank is variola (smallpox); a smallpox patient becomes a candidate for tuberculosis. Out of more than three hundred patients who had had variola he did not find ten who were not tuberculous, and these belonged to the higher classes of society; three of them were cardiac patients, and we know the tendency of arterio-sclerotic patients to be free from tubercular infection. Hence let us never place a variolous individual in contact with consumption; for his part, he does not allow or accept any variolous nurses in his wards, on account of this sensitiveness to the disease peculiar to them; this is an additional reason why the Government should make vaccination obligatory and by so doing destroy one of the favorite fields for the development of tubercle.

EVENING SESSION.

At this meeting, several short communications were made, in regard to the

TREATMENT OF TUBERCULOSIS,

but no new reliable methods were presented.

M. LUTON, of Reims, maintained that he still obtains good results from the use of salts of copper.

M. M. JORISEMME and CHAUVIN, of Liege, have used iodoform quite extensively.

M. LEGROUX uses the pulverized vapor of creasote 20 to 1000, in a closed room.

M. FREMY, of Nice, claimed superiority for the treatment in closed hospitals, where the patients are submitted to a very strict observation.

M. RAIMONDI, of Paris, advocated the use of hydrofluoric acid in tuberculosis.

M. ROUSSEL, of Paris, urged treatment by subcutaneous injection of eucalyptol and arseniate of strychnine.

THE PRESIDENT, M. CHAUVEAU, finally presented the following

PROPOSITIONS,

which the Congress adopted.

1st. It is necessary to place in the jurisdiction of the Boards of Health all questions having a relation to the contagious diseases of domestic animals, including even those that to-day do not appear to be transmitted to man. To vaccinia, glanders, hydrophobia, malignant carbuncle, tuberculosis, other infectious diseases can be added later, which will necessitate the same precaution.

2d. It is necessary to use every possible means, including indemnities to the owners, for the general application of the principle of seizing and destroying totally all meats derived from tubercular animals, whatever may be the extent of the specific lesions found on those animals.

3d. It is necessary to print simple instructions which are to be distributed in all cities and villages, and in which are contained the methods to prevent tubercular infection by alimentation, particularly by milk, and the manner of destroying the virulent qualities of the germs contained in the sputa, linen, beds, etc., of consumptive patients.

4th. The cow-houses must be especially placed under the watch of an inspector, especially those that produce and furnish the milk used in alimentation, so that the contagious diseases from which they may suffer, should not be communicated to man.

5th. That tuberculosis be inscribed in all the sanitary laws or regulations of the world, as a contagious disease, necessitating special prophylactic measures.

ADJOURNMENT.

The Congress then adjourned, after having elected unanimously, for the next Congress which is to take place in two years, Prof. Villemin, of Paris, as president.

REGULATIONS PROMULGATED BY THE FRENCH GOVERNMENT.

As soon as the above propositions were voted by the members of the Congress, the French Government adopted the following regulations in regard to tuberculosis, which are to be enforced:

As soon as tuberculosis is recognized in animals of the bovine species, the Prefect shall order the animal or animals to be placed under the care of a sanitary veterinary surgeon.

Any animal found to be tuberculous, is isolated and sequestrated. The animal cannot be removed unless it be to kill him, and this killing is done in presence of the sanitary veterinarian, who makes a post-mortem of the animal and sends an official report within five days to the Prefect.[1]

Meats obtained from the tubercular animals, are excluded from sale, when:

1st. The lesions have become generalized, that is, not confined exclusively to the visceral organs and their lymphatic glands.

2d. If the lesions, although localized, have invaded the greater part of an organ, or present themselves, as an eruption on the chest-walls, or abdominal cavity.

Those meats excluded from alimentation as well as the tubercular viscera, cannot be used for the feeding of animals and must be destroyed.

The skins are to be used only after they have been disinfected.

The sale and use of milk derived from tubercular cows, are forbidden. The milk, however, can be used on the spot, for feeding animals, after having been boiled.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, June 8, 1888.

J. C. DACOSTA, M.D., IN THE CHAIR.

DR. C. B. PENROSE reported

TWO CASES OF EXTRA-UTERINE PREGNANCY; LAPAROTOMY AND RECOVERY.

CASE I.—M. C., aged thirty-two years, had had four children, the last, seven years ago, and two miscarriages, the last eleven years since. She was treated for syphilis and uterine retroversion in 1883. She applied for treatment again on February 6, 1888. She had been bleeding profusely from the vagina for thirteen days, and had suffered with continuous sharp pain in the left side for the same length of time. The pain and bleeding had started suddenly after heavy lifting. There were no signs of pregnancy. Vaginal examination revealed a small retroverted uterus and a tender cystic mass, about the size of a duck's egg, lying to the left of the fundus. Three days later the mass was again examined and found to have increased to the size of a large orange.

Laparotomy was performed February 10, 1888. The left tube was found distended at the outer half by a cyst the size of an orange. About three ounces of recent blood-clot were found in the Douglas's pouch. The cyst was very friable and easily ruptured. During the removal a considerable quantity of old blood-clot escaped into the peritoneal cavity. The left ovary was independent of the cyst in the left tube. The right ovary was cystic, and was also removed along with the right tube. The convalescence of this woman was uneventful. She has menstruated naturally since the operation. Three months after the operation her breasts became enlarged and painful and she was able to squeeze milk from them. This secretion of milk lasted for two weeks, until stopped by belladonna ointment. These mammary symptoms were the only signs of pregnancy exhibited before or after the operation, and Dr. Penrose asked if it is not an unusual occurrence for this secretion of milk to take place so long after the removal of the product of conception

CASE II.—E. B., aged twenty-eight, has had four children, the last one, a year ago; she had not menstruated since her last labor, until two months before she presented herself for treatment. She then began to bleed profusely, and to suffer with great pain in the left side. For the last few weeks the bleeding had been accompanied by the discharge of shreds from the vagina. Vaginal examination revealed a large cystic mass to the right of the uterus. Laporotomy was performed, May 22, 1888. To the right and posterior to the uterus was a blood cyst, about the size of an orange. The cyst was firmly adherent to the posterior surface of the uterus and to the right ovary and tube, and the right tube opened into the cyst.

This cannot be called a tubal pregnancy, the tube opens into the cyst. In each case there was disease of the opposite tube and ovary, the ovary being in each instance as large as a good-sized egg. The second patient is now out of bed.

DR. M. O'HARA said, in reference to the presence of milk in the first case, that he had seen one case in which milk never appeared. The mother was delivered at full term, and the child died. He did not think belladonna had any effect in arresting the secretion of milk.

DR. WILLIAM GOODELL said that anything producing irritation of the genito-urinary organs may cause the appearance of milk in the breasts. The presence of fibroid tumor may even do so.

DR. JOSEPH HOFFMAN reported a case of

PERITYPHLITIC ABSCESS ORIGINATING IN APPENDICITIS.

The patient, Mrs. B., married, with three children. When first seen she had a pulse of 128, and a correspondingly high temperature, and was unable to stir in bed without extreme pain. Careful questioning elicited the information that eight days previous she had slipped from a chair, causing severe pain thereby in the right iliac region. This continued up to the time at which he was called in, when she was compelled to take to her bed. The duration of her trouble, according to her own statement, was limited to a little more than a week, though,

[1] France in a territorial administrative point of view, is divided into eighty-six departments; the prefect is responsible to the central government for any thing that happens in his department.

in this connection, she mentioned the occurrence, previous to menstruation of an ill-smelling vaginal discharge. Examination per vaginam discovered the presence of a tumor to the right, along side the uterus, the touch of which gave her much pain. The rectum was empty, she having had a dysenteric attack the previous day. External examination was so painful that he did not attempt it. The pain in her back and right leg was intense. He decided that operation was necessary, and called in Dr. Joseph Price for consultation; but after an examination under ether he was somewhat uncertain as to the condition.

Operation being decided upon, an opening was made in the median line. The cæcal portion of the intestine was matted down and only freed with difficulty, The appendix was almost completely buried in pelvic tissue, and the temptation was great to tie it off piece by piece, though it was afterward enucleated by persistent effort. The cæcal portion of the bowel was almost gangrenous in spots and nearly ulcerated through. Surrounding this portion was a quantity of stinking pus, about two ounces. The pelvis was carefully washed out, no antiseptics being used, and a drainage tube introduced into the cul-de-sac, and a rubber tube led from the fossa through the incision, which was closed by seven deep and superficial sutures. Nothing was done with the bowel save to cleanse it. The bowels were at first moved by enemata, and after a quantity of scybalæ was discharged, calomel in one-sixth grain doses was given to clean the tongue and relieve bilious vomiting. The patient made an uninterrupted recovery, all the stitches being removed, as well as the tubes, by about the tenth day. The patient now, at the twenty-fourth day, is sitting up, entirely free from pain.

A curious feature of the case was that in three days after removal of the offending appendix, the patient remarked that she had not been so free from pain for two years, and then went on to give an exact history of her trouble, all of which pointed to perityphlitis.

The points, principally, to which attention may be called are the closing of the incision and the location of the same. Although central, drainage was perfect, and though sutured, it promptly healed, showing he thought that dogma, both as to location and to allowing the incision to remain open, is not wise. As in this case the central incision enabled them to remove at the same time an ovarian hæmatoma, otherwise out of reach, and as drainage was perfectly obtained, these points for such operation are worthy of special consideration.

Dr. Charles B. Penrose asked whether or not the pus was encysted around the cæcum or free in the peritoneal cavity.

Dr. Hoffman said the pus became evident only on reaching the cæcum.

Dr. Penrose said that the cases in which it is proper to make an incision over the cæcum are those in which there is an encysted abscess around the cæcum or the appendix. If there is free pus in the peritoneal cavity, a median incision would probably be better.

Dr. Goodell said that he, on several occasions, had been obliged to sever the appendix from its attachment, in operations for the removal of ovarian tumors, and the operation has seemed to have no effect. It seems to be a useless appendage. He did not know that modern research had thrown any light upon its use. In removing the appendix he simply ligated it with silk and cut it off, carefully squeezing the end so that no fecal matter should remain.

Dr. Joseph Price said that a few years ago ovariotomists regarded the appendix as sacred, as something that should never be touched. His case is of great interest. She had complained for two years, her trouble evidently beginning in an appendicitis. The cæcum was so much thickened and so low down in the pelvis as to suggest tubal disease. She, however, had a good history and several healthy children, the youngest being two years of age. The presence of the tortuous body on the outside determined the choice of the median incision. On opening the abdomen, a small hæmatoma was first removed, afterward the cæcum was dealt with. The course of the case was all that could be desired.

Dr. T. G. Morton teaches lateral incision and nonclosure. As to the first, circumstances should influence the choice; as to the second, he did not believe in it at all. We are too far advanced in surgery for such procedure. He did not believe the view that perityphlitis is necessarily acute. He knew of a case of Dr. T. G. Morton in which the operation for the trouble was repeated at the end of a year, and the appendix removed. Here the trouble was recurrent, gradually growing worse and necessitating the second operation.

Dr. M. O'Hara cited, in substantiation of Dr. Price's view, the case of his own child, in which, inside of eleven months, there were two or three attacks. For four or five months he was in perfect health, although the condition (appendicitis) existed. Another attack followed and death from septic peritonitis resulted.

Dr. M. Price believed that the peritoneum can accommodate large quantities of pus for a time, just as abscess in other parts of the body can be tolerated.

Dr. William Goodell thought that perityphlitis, like any other form of inflammation, may exist for years.

Dr. Hoffman held it to be a mistake to believe that inflammation cannot be present in these without the presence of a well-defined tumor.

Dr. J. V. Kelley thought no one would diagnose perityphlitic abscess without the presence of a tumor. The pericæcal tumors undergo resolution spontaneously and abscesses do not form.

Dr. J. B. Deaver drew a distinction between appendicitis and perityphlitis, and believed that very few cases of inflammation about the appendix undergo resolution.

CORRESPONDENCE.

DIAGNOSIS OF AN EXTRA-UTERINE PREGNANCY IN THE EARLY STAGE.

To the Editor of The Medical News,

Sir: I submit the following hurriedly written notes of the case of Mrs. H. B., aged thirty-four, a well-nourished English woman, who applied for treatment at the close of the clinic at the Philadelphia Dispensary on the evening of June 22, 1888.

"Pain in the left abdomen after eating. Diarrhœa. Vaginal discharge decidedly red, after any exertion. Insomnia. Neuralgic pains in the left hip, thigh and knee. At irregular intervals pus and blood from bowels, next movement in one half hour, ordinary diarrhœal character. Examination: vulva bluish; chocolate col-

ored mucous discharge. Cervix hard; uterus enlarged—not markedly; fundus tender but fairly hard. Cystic mass to left and partly behind uterus, rising higher as it approaches ilium; very tender; pressure on it gives some pain experienced in defecation; probably hæmatocele (suppurating into bowel?)—possibly extra-uterine pregnancy. Vaginal discharge *always* dark, even when copious; is probably discharged from hæmatocele through the left tube. Has not at any time considered herself pregnant. Sent home to bed."

The following additional items were elicited but on account of the lateness of the hour they were not entered in the note book:

She had last conceived twelve years before, and had been delivered at term. She had had no miscarriages. Since then her menstrual periods have been regular in time and duration, until last April when they appeared for but one day, when, after a severe wetting, they ceased, and the patient attributed their cessation to this fact.

A month later, in May, she experienced uncomfortable sensations, but no flow appeared. There were, after this, pains in the breasts, colic and occasional vomiting. Micturition was painful but not free. As mentioned in the note, she suffered from nearly constant pain in the left, lower abdominal region, radiating to the hip, thigh and knee of the same side. At no time had she had paroxysmal shocks of pain, or exhaustion. The question was several times asked during the interrogation, whether she had at any time, during the last three months, considered herself pregnant, and her answer was, each time, in the negative.

About June 8, after having pains referred to the lower bowel, there was a discharge of bright blood, and pus from the rectum, preceded by very painful defecation which continued thereafter. Diarrhœa followed of the character mentioned in the notes. At irregular intervals the passage would consist of a chocolate-colored fluid mixed with mucus, but no fecal matter. In half an hour the dejection would present characters just the reverse, diarrhœal matter without a tinge of coloring or a trace of mucus. This seemed to point to an adventitious opening into the bowel, communicating, it was inferred, with some part of the mass to the left of the uterus. This inference was suggested by the fact that (according to the patient's statement) the colored discharge was precisely like the muco-sanguinolent flow which came from the uterus. This latter had been flowing for a number of days (the exact time cannot be recalled, as the patient was seen but once, and the notes were not as full as they should have been), was mainly constant, and was increased upon exertion.

An examination revealed a decidedly bluish discoloration, particularly confined to the vaginal mucous membrane and remains of the hymen. This line of demarcation has been frequently noticed in examining women in the early months of pregnancy. This discoloration being met with at the beginning of the inquiry, and resembling so much the like condition in pregnancy, gave a strong color to the suspicion of the latter process being in action.

Issuing from the vulva was the brownish-red mucoid discharge mentioned in the notes. The cervix was hard. It frequently is in the early period of utero-gestation, therefore its condition was not a positive index to the condition of the uterine cavity. The os was more yielding than normal, but not enlarged. The uterus was found to be slightly anteflexed; the fundus slightly enlarged, a degree softer than usual, and tender upon slight pressure, but upon careful bi-manual palpation yielding distinct evidence of being empty. No sense of fluctuation was felt, and the antero-posterior diameter was not increased. Passing to the left, there was felt a cystic mass, about the size of a large orange, smooth and equally compressible in any direction. Pressure upon it caused pain similar to that experienced in defecation. The mass extended to the wall of the pelvis, rising a little higher as it approached it. Toward the median line it extended to and partly behind the uterus, and below it dipped into the pelvic tissues on the left side to a plane nearly on the level with the os, but less deeply behind the uterus. To the touch it was evidently cystic and contained a freely moving fluid. It had not the boggy resistance given by the coagula of a hæmatocele. Gentle ballottement was tried, but without success.

Although the ordinary history of the hæmatocele was absent, there never having been the agonizing, paroxysmal pain, or the shock, pallor and depression so generally accompanying this condition, it was thought possible that some slight rupture, either of the sac itself or of some surrounding structure had taken place, to account for the blood and pus from the bowel appearing intermittently, as well as for the marked old-blood discharge from the vagina.

To review the symptoms, there were:

1. A woman, forty-three years old, who had not been pregnant for twelve years.
2. Cessation of the menses.
3. Various subjective but erratic symptoms of pregnancy, such as vomiting, pain in breasts, painful though not frequent micturition.
4. Characteristic blueness of the vagina.
5. A moderately hard uterus, with decidedly strong convictions of its being empty.
6. A cystic mass to the left of the uterus, of presumably rapid growth, and of a size conforming to the probable period of gestation.
7. Pain in the region of the growth of such character as to convince the patient of the existence of deeply seated trouble, and to cause her ready assent to operative measures for her relief.

The evidence was so strong in favor of the existence of extra-uterine fœtation, that an operation was urged, the woman was directed to go home, to avoid any over-exertion on the way there and go to bed at once.

On June 25, Dr. Joseph Price performed laparatomy, and removed a fœtus and its placenta from the unruptured cyst. Respectfully yours,

HARRIS A. SLOCUM, M. D.

PHILADELPHIA, July 30, 1888.

NEWS ITEMS.

Inoculation for Cholera.—The following is the chief part of the paper of DR. GAMALÉIA, of Odessa, on vaccination against Asiatic cholera presented by M. Pasteur at a recent meeting of the Paris Academy of Sciences:

"The author has only applied to cholera two great principles of the 'experimental method'—that of progressive virulence and that of chemical vaccine matter. It is known that the ordinary forms of cholera vibrion are so little virulent that M. Koch, who discovered them,

thought, after many failures, that cholera could not be communicated to animals by inoculation. The pupils of M. Pasteur at the time of the French expedition to Egypt only once succeeded in communicating cholera to one hen. Now it is an easy matter to give the cholera virus excessive virulence. All that is necessary is to introduce it into a pigeon after passing through a guinea-pig. It then kills the pigeon by producing a dry cholera. What is still more important is that the microbe appears also in the blood of the pigeons. After a few passages this microbe acquires such virulence that the blood of the pigeons in a dose of one or two drops kills all fresh pigeons in from eight to twelve hours. This virus kills also guinea-pigs in still smaller doses. It is important to note that animals of both species become victims to the infection.

"With this deadly virus we have been able to establish the existence of an immunity from cholera. Thus we inoculate a pigeon twice with the ordinary (non-virulent) virus of cholera, first in the pectoral muscles, next in the abdominal cavity. The pigeon had become proof against repeated infection by the most virulent virus in the blood of pigeons. The fact of immunity was thus ascertained.

"Now if this passage virus is developed in a nutritive broth, and is afterward heated to 248° F. for twenty minutes to kill all the microbes it contains, it is possible to show that the heat has left in existence a very active substance in the sterilized broth. This broth, in fact, contains a poisonous substance which produces characteristic phenomena in the animals experimented on. Inoculatated to the extent of four cubic centimetres to one guinea-pig, the sterilized broth produces a progressive fall of temperature, and death in twenty or twenty-four hours. On dissection there is found a swollen state of the stomach and intestines, and, as was to be expected, a complete absence of cholera microbes. Pigeons succumb in this way with the same morbid phenomena, but their death is produced only by a dose of twelve cubic centimetres injected at once. If, on the contrary, there is introduced into them the same quantity of twelve cubic centimetres, but in three, four or five days (by injecting, for instance, eight cubic centimetres the first day and four cubic centimetres two days after), they are not killed. There is, besides, shown to exist in these pigeons a phenomenon of the highest importance. They have become proof against cholera. The most virulent virus —the blood of a pigeon inoculated even to the amount of half a cubic centimetre—is no longer able to kill them.

"The vaccination of guinea-pigs is still more easily carried out by introducing into them the poisonous and vaccinating broth in a quantity of two cubic centimetres. They are vaccinated at two or three sittings. Thus we find here a method of vaccination for the prevention of cholera. The method is founded, as has been shown, on the employment of sterile vaccinating matter, and it possesses all the advantages of chemical vaccination—certainty and security — as the chemical vaccinating matter can be strictly measured and introduced in doses small enough to be quite inoffensive, while the total can give the quantity desired, for complete immunity is obtained without danger and without exception. We consequently hope that this method might be applied to human vaccination to preserve the populations from Asiatic cholera."

M. Pasteur, after reading the note, stated that Dr. Gamaleïa had expressed his readiness to repeat the experiments at Paris in presence of a committee of the Academy of Sciences and to try on himself the inoffensive and sufficient dose for human vaccination. He is ready to undertake a journey into countries where cholera prevails to prove the efficacy of his method. M. Pasteur added that he need scarcely say that he accepted with the greatest satisfaction the offers to conduct the experiments in his laboratory made by Dr. Gamaleïa.

The letter was referred to the committee, which has a prize of 100,000 f. in its hands for a cure for cholera, and it was arranged that the experiment should be postponed till November.

The Yale Thermometric Bureau.—The thermometric bureau established, in 1880, in connection with the observatory of Yale University, is accomplishing a work which physicians ought to appreciate. It has examined a gradually increasing number of thermometers during the years of its existence, but its usefulness is not measured by the number of instruments that pass through its hands. There is from year to year an improvement in the quality of instruments of American manufacture submitted for verification, both actual and relative to foreign manufactures, and the observatory claims a share of the credit for this improvement.

"It may now be fairly said, as it could not have been said before the institution of this bureau, that the best clinical thermometers of American manufacture compare favorably with the best foreign manufactures, both in the smallness of the amount of the required corrections and in their uniformity throughout the scale." Such was the statement of the managers of the observatory in their last year's report, and this year they find occasion to say that their good work is still progressing.—*Boston Med. and Surg. Journal.* Aug. 16, 1888.

Artificial Fecundation.—Since the Abbé Spallanzini in 1767, fecundated bitches, and Hunter, later on (1799), succeeded in rendering a man with hypospadias a happy father, the operation of artificial fecundation has passed through many different experiences, which has brought it more than once before the tribunal of both public opinion and the laws of countries. Eight years ago a married couple in Bordeaux, despairing of having a family, consulted a Doctor Lajatre who, by circulars spread about the country, pretended to render sterile marriages fruitful by a special operation. The doctor performed the operation, but no results followed, and his clients refused to pay him the fee demanded—£60. He thereupon summoned them before a magistrate, but this worthy representative of the law, after listening to the explanations of the doctor, which, by the way, were very minute, all the details of the operation being entered into, not only dismissed the case, but fined the plaintiff for revealing professional secrets. Further, the magistrate gave it as his opinion that artificial fecundation was repugnant to the laws of nature and a positive social danger, and that such procedures should not be put into practice.

This verdict was taken up by the Society of Legal Medicine, as it is called in France, and the president (M. Brouardel) said that the operation might be per-

formed where, after other means had failed, no reasons were found in the man or the woman to account for sterility. Encouraged by this declaration, M. Lajatre came up to Paris, where he advertised in the daily papers his method of procuring families. It will be remembered that the Paris Faculty refused to accept a thesis on this subject presented by a student called Gérard. Last year a sort of company was got up in the capital, sending broadcast pamphlets entitled *Do Vitam*. A large apartment was hired in the Chaussée d'Antin, a doctor was engaged to do the operation, and for a time all went on well. Disappointed husbands and wives came in numbers, but some disagreement took place between the parties interested, and the whole matter has now been placed in the hands of the lawyers, from which it is not likely ever to come out.—*Medical Press*, July 18, 1888.

The Book of Doctors.—In 1884 appeared Part I. of a work entitled "Biographisches Lexicon der Hervorragenden Aerzte aller Zeiten und Völker" (Biographical Lexicon of Eminent Physicians of all Ages and Nations). The special editor was Professor Gurlt, of Berlin, and the publisher Dr. August Hirsch, Professor of Medicine in the same city. The work was to be completed in six volumes in 1888. It is now complete and is spoken of as, after Eulenburg's Real-Encyklopædia, the most distinguished collective work in the domain of medical literature. For obvious reasons the biographies of living medical men are recorded in a sufficiently bare manner, little besides dates and other facts being given. The work contains biographies of 14,415 physicians, of whom a fair proportion are Germans or of a German-speaking nationality. Including Germans, Austrians, German Swiss and Russians, 5045 German medical authors have been found of sufficient eminence to claim a niche in the great gallery. The fact that the biographies of over 9000 foreign medical men are included in the work shows that the editors have not been by any means exclusive. Next in number to the Germans follow the French, British, Italians, North Americans and others. It is quite certain that no work extant can be compared with it, and as a monument of German diligence and German thoroughness it will bear the strictest examination and criticism. Although it is too much to expect that such a comprehensive work will be translated into other languages, it is something to know that such a vast amount of material has been gathered and is accessible to any who choose to make use of it.—*Medical Press*, July 25, 1888.

Death from a Poisoned Cock's Spur.—The death of an entire family of six persons, at the City of Mexico, is reported to have followed quickly after the partaking of a meal of roast fowl, the chicken having been killed at a cock fight. The illness was very rapid in its course, death taking place before medical attendance could be procured. The explanation of this strange casualty that is offered is that the spur, by which the death of the bird was caused, had been poisoned before the cock fight, and that enough of the poison was taken up and retained in the flesh of the slain animal to involve mortally a whole family.

The Treatment of Obesity.—The four principal plans for the treatment of obesity are thus summarized by the *Detroit Lancet*: The eating of nothing containing starch, sugar or fat, called the Banting system; the eating of fat, but not sugar or starch, called the German Banting; the wearing of wool and sleeping in flannel blankets instead of sheets, or the Munich system; not eating and drinking at the same time, or rather the allowing of a couple of hours to intervene between eating and drinking, or the Schweninger system.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 28 TO SEPTEMBER 3, 1888.

ALDEN, CHARLES H., *Major and Surgeon.*—Detailed as a member of the Board of Medical Officers convened at the U. S. Military Academy, West Point, N. Y., vice Major and Surgeon Charles R. Greenleaf, relieved.—Par. 2, *S. O. 199, A. G. O.*, August 28, 1888.

CALDWELL, DANIEL G., *Major and Surgeon.*—To report to the Recorder of the Retiring Board in session at Fort Leavenworth, Kansas, as a witness in the case of Captain Thomas Sharp, Seventeenth Infantry.—Par. 2, *S. O. 74, Department of the Platte*, August 18, 1888.

CALDWELL, DANIEL G., *Major and Surgeon.*—Having completed his duty as witness before the Retiring Board, Fort Leavenworth, Kansas, to return to his station, Fort D. A. Russell, Wyoming.—Par. 4, *S. O. 106, Department of the Missouri*, August 24, 1888.

LORING, LEONARD Y., *Assistant Surgeon.*—Granted leave of absence for one month.—Par. 1, *S. O. 97, Department of Arizona*, August 23, 1888.

TAYLOR, MARCUS E., *Captain and Assistant Surgeon.*—Granted leave of absence for four months, to take effect about October 15, 1888.—Par. 8, *S. O. 196, A. G. O.*, August 24, 1888.

BIRMINGHAM, HENRY P., *Captain and Assistant Surgeon.*—Relieved from duty at Fort Myer, Virginia, and ordered to Fort Klamath, Oregon, for duty.—Par. 18, *S. O. 196, A. G. O.*, August 24, 1888.

BALL, R. R., *Assistant Surgeon* (U. S. Army, Fort Riley, Kansas).—Ordered to Fort Lewis, Colorado, for temporary duty.—Par. 5, *S. O. 108, Department of the Missouri*, August 27, 1888.

SWIFT, EUGENE L., *Captain and Assistant Surgeon.*—Upon being relieved from temporary duty at Fort Klamath, Oregon, to return to his proper station, Fort Spokane, Washington Territory.—Par. 18, *S. O. 196, A. G. O.*, August 24, 1888.

RAFFERTY, OGDEN, *Assistant Surgeon.*—To proceed from Fort Clark to the camp at the Department Rifle Range, near San Antonio, Texas, and report for temporary duty.—Par. 3, *S. O. 85, Department of Texas*, August 15, 1888.

RAFFERTY, OGDEN, *Assistant Surgeon*.—Upon conclusion of Department Rifle Competition, will report to the Inspector of Rifle Practice, Division of the Missouri, for assignment to duty in connection with the Division Rifle Competition, as Camp Surgeon.—Par. 4, *S. O. 86, Department of Texas*, August 17, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 1, 1888.

CRANDALL, R. P., *Assistant Surgeon*.—Detached from the "Saratoga," and wait orders.

DUBOSE, W. R., *Passed Assistant Surgeon.*—Detached from the "Jamestown," and ordered to the "Constellation."

ARNOLD, W. F., Nashville, Tenn., commissioned Assistant Surgeon in the Navy, August 18th.

LUNG, GEORGE A., Canandaigua, N. Y., commissioned Assistant Surgeon in the Navy, August 18th.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, SEPTEMBER 15, 1888. NO. 11.

ORIGINAL LECTURES.

SKIASCOPY; OR THE "SHADOW" TEST FOR THE DETERMINATION OF THE REFRACTION OF THE EYE.

A lecture delivered before the School of Ophthalmology.

BY SWAN M. BURNETT, M.D.,

PROFESSOR OF OPHTHALMOLOGY AND OTOLOGY IN THE UNIVERSITY OF GEORGETOWN; DIRECTOR OF THE EYE AND EAR CLINIC AT THE CENTRAL DISPENSARY; AND OPHTHALMIC AND AURAL SURGEON TO THE GARFIELD HOSPITAL, WASHINGTON.

GENTLEMEN: In our studies of the methods of determining the refraction of the eye by means of the ophthalmoscope up to this time, we have dealt with those ordinarily employed, which gave an image, real or virtual, of the details of the fundus oculi—optic nerve entrance, retinal vessels, etc. These are the classical methods and will always remain in vogue, because of their indispensable value in general diagnosis; and for this reason they should be cultivated assiduously by all those who wish to make themselves proficient ophthalmoscopists.

There is, however, another method of ophthalmoscopic optometry, recently brought into practice, which, though based upon the same optical principles as these, differs from them in some points of practical detail. It is a method which has been enthusiastically recommended and endorsed by some, while by others, of equally good authority, it is regarded with indifference or distrust. There are those who look upon it as most inaccurate or unsatisfactory, but many regard it as probably the simplest and most trustworthy and valuable plan of objectively determining the refraction which we have at our command. The Germans use it scarcely at all; the French, among whom it originated, are divided in opinion as to its usefulness, while in England it is to-day the most generally adopted method for the ophthalmoscopic diagnosis for refraction. The eclectic character of the American is shown in this as in all other questions, and the "shadow-test" finds adherents and detractors in almost every town and city where scientific ophthalmology is practised. Its very simplicity of execution is brought forward as an argument against it, because, it is averred, if it should come into general use the other methods of ophthalmoscopic examination, particularly that by the direct method, which are so important on other accounts, would be neglected. I have yet, however, to learn, gentlemen, that simplicity is an objectionable quality in any procedure which is as accurate and reliable as others more complicated, and we have no need to fear that the determination of refraction by the ordinary methods of ophthalmoscopic examination are likely to fall into desuetude, "innocuous" or otherwise. No one method so completely occupies the field as not to allow room for one more; and even though you may adopt the shadow-test as a routine method of determining refraction, you will still find use for your refraction-ophthalmoscopes.

The method under consideration is known by a large number of names, no one of which is accurately descriptive of its underlying principles.[1]

Out of the multitude, I have selected one which seems to me, on the whole, the least objectionable and which is not likely to be confounded with anything else of a similar character.

The most prominent—in fact, the guiding—feature of the method, is the shadowy edge of an illuminated area which apparently passes across the pupillary space. In all descriptions of the method you will find that it is to this shadow bordering the bright area that attention is directed, and this being so and there being no other method of examination to which the term can be applied, the "shadow-test" seems, all things considered, about as appropriate as any that has as yet been suggested. It does not commit us to any special theory and there is no liability to confusion—two very strong points in nomenclature. If we want to be scientific and classical we may say "skiascopy" (σκιά, a shadow; σκοπέω, I look at).

The manner of performing skiascopy is very simple: Take an ophthalmoscopic mirror—plane or concave—and, holding it at a distance of forty or sixty inches (1 m. or 1.33 m.) from the eye to be examined, throw the light coming from a flame behind and above the head of the patient into the pupil. The pupillary space will, of course, appear brightly illuminated. Then rotate the mirror slightly on its vertical axis, and a brightly illuminated area, bounded by a dark shadowy edge, will appear to pass horizontally across the pupillary space. The intensity of the illumination and the direction and rate of its movement—or rather that of its shadowy edge—form the basis of the diagnosis of the refractive condition of the eye under examination.

How this is made possible it is our present purpose to inquire.

The phenomena of the shadow differ, accordingly as the experiment is made with a plane or a concave mirror,

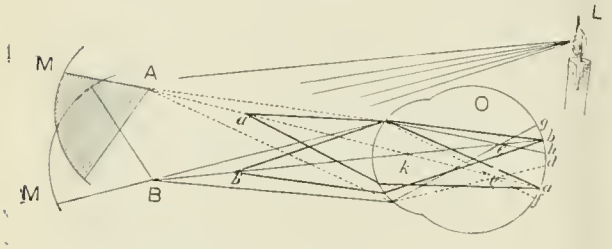
[1] It was called *keratoscopie* by its discoverer (Cuignet) and is still so-called by a number of French writers. This is a misnomer, for we do not inspect the cornea at all, and it plays only a part in the production of the phenomena. *Retinoscopy*, used almost altogether by the English, is equally incorrect, for we do not inspect the retina, but only the image of the bright image formed on the fundus, and which may not be on the retina at all, but on the optic disk. *Pupilloscopy* (*koroscopy*) is somewhat better chosen, since without a pupil to admit the light, we could have no phenomena; but it is evident that it is not the pupil we inspect or which gives us the information we seek. *Fantoscopie retinienne* is merely an approximation to the true explanation. *Retinoskiascopie* is somewhat better, while *dioptroscopie* can mean nothing, since we do not inspect, but measure, the refracting power of an optical apparatus.

the reason whereof will be very apparent when we have examined the matter a little further. We shall first study

SKIASCOPY WITH THE CONCAVE MIRROR.

When the light from a concave mirror of from 7 to 10 inches' focus (20 to 25 cm.) is thrown into the eye from a distance of sixty inches, the source of illumination is not the flame behind the head of the patient, nor the mirror itself, but the inverted image of the flame, L (Fig. 1), formed by the mirror, M, at its focus, A, which is, in this case, about forty or fifty inches in front of the observed eye, O. From this focus of illumination a cone of divergent rays proceeds, which forms a large circle of illumination on the face, a part only of the rays passing into the pupil. The light, however, that does pass in at the pupil is refracted by the optical media of the eye and finally strikes the retina.

Fig. 1.



Now, the manner in which these rays shall strike the retina depends upon the refractive condition of the eye. Let us suppose, in this instance, that the eye is myopic. In that case the rays proceeding from A will, after entering the eye, cross at *e'* and, passing on, form on the retina a diffusion image, *f d* of A, with its centre at *a*. This image, or bright spot, now becomes in its turn an illuminated object, sending out rays of light, just the same as if it were an originally luminous body. And just here is where I think many students of ophthalmoscopy find a hitch in their clear comprehension of the optical phenomena involved.

In the first place, you must remember that after the light gets into the eye and falls on the retina, the source of illumination is to be disregarded and we have only to do with the illuminated retinal surface, which might just as well have been illuminated from behind as through the pupil, as, indeed, we have already many times demonstrated to you on the artificial eye. We throw light into the eye not to get a reflection from the retina as from a plane bright surface like a mirror, but for the same reason that we open a window of a dark room, namely, to illuminate the objects we wish to see, and not to get a reflection of the sun and sky from these objects.

Another possible source of confusion, as I have found, is in the mistaken application of the law of conjugate foci. We have taught and demonstrated to you that in conjugate foci the image can replace the object, and the object the image, showing that the rays of light follow the same path going and coming. Its application in this instance, however, is not, as I have found many students to suppose, to the flame image A, and the illuminated area *d f*, but to the area *d f*, and its image at *a'*. The rays from the area *d f* do not cross at *e'* and go back to A, but diverge like the rays from any other illuminated object and, striking the refracting media in the front of the eye, are brought to a focus and form an image of it at the far point of the eye (*a'*), where an object must be, in order to have its image formed clearly and distinctly on the retina. In other words, *the retina and the far-point of the eye are conjugate foci.* We shall find this fact to lie at the basis of this method of examination and you should get it clearly fixed in your mind, otherwise there will come a point in your studies of it when you will find yourself in inextricable confusion.

Taking, then, *d f* as the illuminated object and assuming, as we have done, that the eye is myopic, an image of the area *d f* will be formed by the refracting media *in front* of the eye and at the conjugate focus of *d f*, that is, at the far point of the eye *a'*. Now the distance of the far-point *a'*, as we have learned, depends upon the degree of the myopia (that is, upon the amount of the increase in the length of the eyeball), being closer to the eye in the high degrees and getting farther and farther away as the degree decreases, until it reaches infinity, when myopia ceases and emmetropia sets in.

Suppose, now, we rotate the mirror on its axis from *M* to *M'*. The image of *L* will then move from *A* to *B*, and remaining, as before, the source of illumination, form on the retina the blurred image *g h*, the rays having crossed at *e*. The rays coming from this illuminated area *g h*, like those coming from *d f*, must come to a focus in front of the eye and form an image at the far point *b'*. In making this rotary movement of the mirror the following important changes will have been noted, viz., *that while the movement of the illuminated area on the retina has been the opposite of that of the mirror, the movement of the aërial image of this area, at the far point of the eye, has been in the same direction as that of the mirror.* If, therefore, on rotating the mirror before the eye, at a distance of sixty inches, we find the shadowy edge of the bright image to pass across the pupillary space in the same direction as the mirror, it shows that the image is formed between the mirror and the eye (at its far point), and consequently there must be M greater than 1 D. And not only that, but the amount of displacement of this aërial image, with its shadow, as compared with that of the mirror—that is to say, its rapidity of motion, will also depend upon the distance of the shadow from the eye; being slower and shorter when it is near and more rapid and more extensive as it recedes toward the mirror. The reason of this is at once apparent when we notice that the lines A *k* and B *k*, passing through the nodal point of the eye and upon which these images are formed, gradually approach as they go toward the eye and finally come together at the nodal point *k*. While, therefore, the *direction* of the shadow movement, *with the mirror*, gives us knowledge of the existence of the myopia, the relative *rapidity* of its movement gives us some knowledge of its degree, though only vaguely.

These phenomena are, of course, only possible when there is an actual aërial image of the illuminated retinal area formed between the observer and the eye under observation—that is, when, as in the case under consideration, the myopia is greater than 1.25 or 1.5 D., because when the myopia is lower than 1.25 D., the image is no longer formed in front of the observing eye, but the rays going to form it behind the mirror strike the eye of

the observer as they come immediately from the object—that is to say, the object and not its image, real or virtual, is seen; and, of course, any change in its position on the retina is observed in a direct manner; and as the movements of the bright area on the retina are the opposite of those of the image A and of the mirror, the shadow movement, in this case, will be the opposite, or *against* the mirror movement.

The same conditions are present, too, when the rays emerge parallel, as they do when the eye is emmetropic. In Fig. 2, the rays from the area at *a* emerge parallel in

FIG. 2.

the direction A, and when it moves to *b* in the direction B, and the image is at infinity, and is infinitely large. The eye of the observer, however, intercepting the rays in their course, forms the image on its own retina and sees it and its movements directly and as they are—that is, when *a* moves to *b*, from right to left, the movement appears, to the observing eye, to be from right to left.

In *emmetropia*, therefore, and in *low degrees of myopia* in which the far point is behind the mirror, the *movement of the shadow is against* that of the mirror.

We must have, necessarily, a very different set of phenomena when the eye is *hypermetropic* and the rays from the illuminated retinal area emerge divergently. (Fig. 3.) Here the bright area cannot be seen directly, as in emmetropia, or in the lower forms of myopia, nor is there a real image of it formed anywhere, as in myopia of the higher degrees.

The eye of the observer, however, placed in the path of the diverging rays, refers their origin to a virtual image, *c*, behind the eye (at its far-point, which, as you know, is negative in the hypermetropic eye), where they would all meet if prolonged backward. When the bright area is moved by the rotation of the mirror from *a* to *b*, the virtual image moves in the same direction from *c* to *f*—that is, *against* the movement of the mirror.

It will be noticed, too, that the more divergently the rays emerge from the eye—that is, the higher the degree of hypermetropia, the closer behind the eye will be the virtual image. As a result of this, the extent of movement of the shadow will be less the higher the degree of hypermetropia, gradually becoming greater as the degree increases, until it reaches infinity and the rays emerge parallel and the hypermetropia merges into emmetropia. It is easy to see that when the virtual image is at *c* and is displaced on rotation of the mirror to *f*, the extent of movement is less than when it is at *c* and displaced to *d*.

We thus see that the direction of the shadow movements, when the source of illumination is the image of a flame produced by a concave mirror held about forty inches in front of the observed eye, gives us positive and definite information as to the refractive condition of the eye, and we recapitulate it as follows:

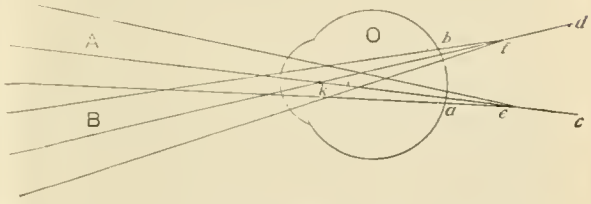
1. Movement of shadow *with* the mirror: myopia greater than 1 D.

2. Movement of shadow *against* the mirror movement: hypermetropia, emmetropia or myopia less than 1 D.

We know also, further, that the *movement is less the greater the amount of ametropia* (M. or H.).

As regards the *distinctness of the shadowy edge* and the intensity of the contained bright area, it is curious to note that diametrically opposite opinions are held.

FIG. 3.



Thus, Hartridge,[1] who is the latest English authority on the subject, says:

"It is in the lower degrees of ametropia that we get the brightest and best defined shadows. The clearness of the image and the brightness of its edge decrease as ametropia increases." (P. 87.)

On the other hand, Galezowski, in the last edition of his treatise on the eye, states:

"The shadow is darker and its movement slower in proportion as the ametropia is greater. Of these two peculiarities the first is due to the fact that the enlargement of the virtual image in H. and of the real image in M. is much less as the M. or H. attains a higher degree. The same quantity of light and shadow being distributed over less surface, the illuminated area is necessarily brighter and the shadow denser."[2] (P. 824.)

Both, it is very evident, cannot be right, and Mr. Hartridge is the more nearly correct. He neglected, however, to state that the brightest area with the best defined shadow in this method of examination is in that degree of myopia in which the image of the flame formed by the mirror lies at the far-point of the eye[3]—that is, when A and *a'* fall together (Fig. 1). This image is then at conjugate focus with the retina, on which a clear and sharply defined image is formed, and the image of this image, formed by the dioptric apparatus of the eye, which is the one we see, is also bright, with sharp edges. Now as the retina moves backward or forward from this position of conjugate focus (the mirror remaining in the same position)—that is to say, as the eye becomes hyperopic or myopic, the retinal image becomes larger in extent, but less bright and with more blurred outline, the same amount of light covering a larger area.

It should also be remembered, in this connection, that

[1] The Refraction of the Eye. By Gustavus Hartridge. Third edition. Philadelphia: P. Blakiston Son & Co., 1888.

[2] Traité des Maladies des Yeux. Par Dr. X. Galezowski. Third edition. Paris: J. B. Ballière, 1888.

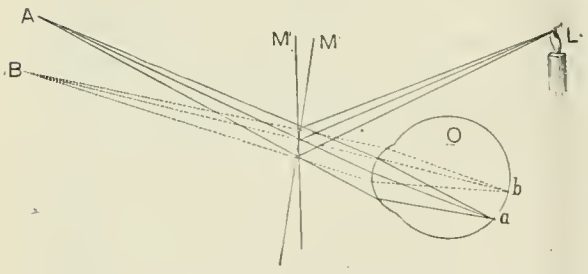
[3] Schmidt Rimpler's plan of determining refraction by the indirect method of ophthalmoscopic examination has its basis on this principle.

the size of the pupil controlling, as it does, the amount of light entering the eye (in fact, the retinal bright area is, to a degree, an image of the pupil) has much to do with the brightness of the image, as does also the amount of pigment at the part of the fundus on which the illuminated area is formed. There are so many factors entering into the production of the brightness of the image, which, after all, is only relative, that we cannot attach much signification to it as a diagnostic sign and can only say that as the retina and the source of illumination depart from the positions of conjugate foci, the retinal illuminated area becomes, *pari passu*, blurred in outline, and, of course, if its outline is blurred, the outline of its image must be proportionately blurred.

EXAMINATION WITH THE PLANE MIRROR.

The chief differences in the use of the concave and plane mirrors in making the "shadow-test" consist in changes in the position of the source of illumination and in the relations of the movement of the mirror and the shadow. The causes of this difference will be apparent at once on an examination of Fig. 4. The light diverging from the flame L behind the eye and falling upon the plane mirror M will be reflected and assume a direction as if it came from A, situated the same distance behind the mirror as L is in the front of it, A thus becoming the real source of illumination. These rays entering the eye O will form the illuminated area *a*. When the mirror is rotated to the position M′, in accordance with the same law, B becomes the source of illumination and forms the retinal bright area at *b*.

Fig. 4.



The relation of these movements to each other, it will be observed, are the opposite of those we found when using the concave mirror. There the source of illumination moved in the same direction with the mirror, here in the opposite direction; there the bright area on the fundus moved in the opposite direction to the mirror, here in the same direction. This necessarily entails a difference in the relative movements of the mirror and of the image of the retinal bright area, with its shadowy edge formed by the optical apparatus of the eye, and which we observe for diagnostic purposes. This image of the retinal bright area is always found on a line passing through the centre of the bright area and the nodal point of the eye, as shown in Fig. 1, and the same law, in this particular, applies to both methods, but it is apparent at a glance that those images formed *in front* of the mirror, between the observed eye and the mirror M, move *against* the mirror, while those formed behind the mirror (weak M.), and at infinity (E), and behind the eye (H), must move *with* the mirror.

The law regarding the *rate of movement* is the same here as with the use of the concave mirror.

As regards the *brightness* of the area and the sharpness of the shadow edge, what has been said under the head of the concave mirror applies here. It is apparent, however, that since the source of illumination is always behind the mirror, we can never have even one point where the brightness is as intense and the shadow so sharply defined as we can have it in some degrees of myopia with the other method, and for the simple reason that the conjugate focus of the retina and source of illumination, are never in front of the eye of the observer.

Recapitulating, then, the shadow phenomena with a plane mirror, we have:

1. Movement of shadow *with* the mirror—E., H. or weak M.

2. Movement *against* the mirror—M with its far-point between the observed and the observing eye.

3. The slower the movement the greater the degree of ametropia (M. or H.).

As regards the relative merits of the two methods, there exists quite a difference of opinion among those practising them. There is, however, one advantage connected with the use of the plane mirror, which has caused me to give it a preference over the concave in the usual routine examinations. Unless the concave mirror has a very long focus—longer than that of the mirrors of our ordinary ophthalmoscopes—it is necessary to keep comparatively close to the observed eye—certainly not farther away than sixty inches—in order to have sufficient illumination. If we get farther away than this, the cone of light becomes so large by the time it reaches the face that the manipulation of the mirror is rendered somewhat difficult and the illuminated area on the fundus so faint as to be almost indistinguishable, particularly if the eyes are dark. This makes it impossible accurately to detect myopia weaker than 0.75 D. With the plane mirror, however, the farther you get away from the eye under examination (within certain limits) the smaller the light area on the face becomes until the rays reflected from it become essentially parallel. This last point is reached when the distance from the mirror to the light is about one hundred inches. It is possible, with the plane mirror, to get from one hundred and twenty to one hundred and sixty inches from the observed eye, and have a fairly good illumination, and thus measure 0.25 D. of myopia if necessary.

Another reason for the more general use of the plane mirror, in this country at least, is that the concave mirrors on most of the ophthalmoscopes in use here are "tilting" segmental mirrors, ill-fitted for this method of examination. Besides, a plane mirror is very useful for other ophthalmoscopic purposes, and you should always have one on hand. I have combined the "tilting" and plane mirrors in my own ophthalmoscope[1] in a very convenient manner, by having the tilting concave mirror swung in front of the plane one. The plane mirror does not interfere in the least with the concave mirror when the latter is in use, and when it is desired to use the plane mirror alone, the tilting mirror can be detached in a second from its upper bearing and fastened below, leaving the plane mirror free. After a constant use of this

[1] Manufactured by Queen & Co., Philadelphia. For description see Trans. Amer. Oph. Soc., 1887.

instrument for over a year, I have every reason to be satisfied with the arrangement.

Up to this point, however, we have been able to tell only the kind, but not the *degree of ametropia*, except, in a general way, by the amount of shadow movement compared with what we know it to be in emmetropia. This is by no means sufficient for accurate diagnostic purposes. The simplest as well as the best means of accomplishing this is to place in front of the eye, under examination, glasses of a kind to correct the faulty refraction that is present, one after another, until one is found that gives an emmetropic shadow movement. For example: Suppose the examination is made by means of the concave mirror and at a distance of fifty-three inches (1.33 m.), and that the movement is *with* the mirror and rather slow as compared with the mirror movements. This, we know, is myopia—and at least of medium degree. We then put in the trial frame a — 3 D. and place it in front of the eye under examination and see what shadow movements we get through this. There is still movement with the mirror, but it is more rapid than before. This shows that there is myopia yet greater than 3 D. We try —4, and still there is movement with the mirror. A — 5 gives very slight movement against the mirror. This shows that the aërial image is formed behind the observing eye. If — 4.75 or — 4.5 give movement with, we may know that the — 5 D. has reduced the M. to about 0.75 — that is, to a myopia having a far-point at fifty-three inches (1.33 m.) from the eye, or near the observing eye. Add this to the — 5, and we have — 5.75 D. as expressive of the myopia of the eye under examination. In other words, find the weakest lens which at a distance of fifty-three inches from the eye gives a reverse movement, then add 0.75 and you have the lens required in myopia.

If it is hypermetropia, of course you must subtract 0.75, for in order to obtain a reversal of movement you have to induce a M. of 0.75 D., and a reversal produced by + 4, for instance, means a H. of 4.25 D., the other 0.75 being required to bring the far-point from infinity to the position of reversal in front of the observer. Of course, if the plane mirror is used, you can get much farther away, as far indeed as one hundred and sixty inches, where an ametropia of 0.25 D. can be measured directly—since the far-point of a myopia of 0.25 D. is at one hundred and sixty inches (4 m.), and where, necessarily, is found the point of reversal of shadow movement.

The disadvantages of the method you see at once to be the consumption of time in placing and replacing the different lenses in the trial frame in front of the eye. To obviate this, to some extent, Mr. Doyne, of Oxford, England, has devised a disk with a flange like the edge of a dinner-plate, in which is fitted a series of lenses. This disk is placed in front of the patient and while the flat surface stands obliquely to the plane of the face the flange with its lenses lies parallel to it and at right angles to the visual axis. The disk, which is about 1½ feet in diameter, standing thus obliquely, can be revolved on its axis in such a way as to bring the lenses successively in front of the eye under examination by a person with an arm of an average length at a distance of about fifty inches.[1]

[1] Since the MS. has been in the hands of the printer I have myself arranged a disk of hard rubber containing 25 lenses, each 3 cm. in diameter, in such a way as to enable the patient to revolve it and bring each one successively, as required, before the eye under examination. The disk can be attached to a stand or fastened by an arm to the wall of the ophthalmoscopic room. I find it to be easily manipulated, and, enabling the observer to get at a greater distance from the patient, is more convenient than the apparatus of Doyne. A graduated tape, attached to the disk, enables the observer to tell exactly his distance from the observed eye.

Another method, first suggested, I believe, by Chibret, but also by Jackson, of Philadelphia, is to move the mirror toward the eye under examination until the point of reversal is found; then the distance from the observed to the observing eye marks the far-point of the eye under examination. This is an excellent method for rapidly detecting, in a rough manner, the degree of myopia; and for other cases an artificial myopia can be induced by means of a convex lens of a known focus. The point of reversal through this lens being found, the strength of the lens is to be subtracted from the myopia thus manifested.

If, for example, we use a + 5 D. with a focus of 20 cm. (eight inches) $\left(\frac{100}{XX} = 5\right)$ and we find the point of reversal at 20 cm., we know there is emmetropia (5—5= 0). If the point of reversal is at 33 cm. (thirteen inches), we have $5-\left(\frac{100}{XXXIII} =\right)3 = 2$ D. of hypermetropia; if at 50 cm. (twenty inches), $5-\left(\frac{100}{L} =\right)2 = 3$ D. of H., and so on. If there is H. higher than 5 D., we must use a + 8 D. or even + 10 D. in the trial frame.

THE DETERMINATION OF ASTIGMATISM.

Probably the most valuable application of the shadow test is to the unravelling of the tangled and complicated threads of evidence which so often present themselves in determining astigmatism. A few movements of the mirror are often sufficient to fix the character of an astigmatism, concerning which a tedious examination with glasses failed to give any satisfactory knowledge.

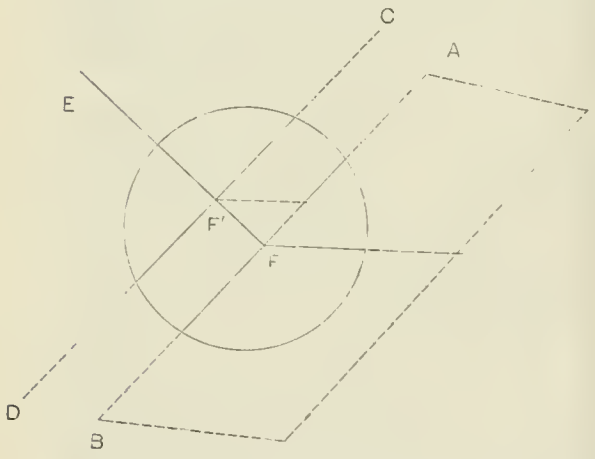
The ease with which this is done is readily understood when we remember that astigmatism is only a difference in the refraction of the opposing meridians of the eye and that we can, by changing the axis of rotation of the mirror, test successively the refraction of each separate meridian. We are further assisted, moreover, in determining astigmatism by some peculiarities of shadow-movement due entirely to the astigmatic refraction.

In testing for astigmatism we follow the same general plan as for general ametropia, the only difference being that we do not limit the rotation of the mirror to one direction. We rotate first horizontally then vertically, and if the shadow movements are of the same character and degree and particularly if the edge of the shadow always moves strictly in the direction of the mirror movement (with or against), we may know that no astigmatism exists. If, however, we find a difference either of kind or amount of shadow movement in the opposing meridians, or that the shadow edge moves obliquely to the mirror movement, astigmatism certainly is present.

The obliquity of shadow movement is not only valuable in giving us knowledge of the existence of astigmatism, but especially in showing us the direction of the faulty meridian. The reasons for this are as follows:

In our studies of astigmatism we found that the image of a point, or circular area of light formed by an astigmatic system, was not a point but a series of ellipses whose axes coincided with the greatest and least refracting meridians. Now, the image of the light spot on the fundus, formed by the astigmatic refracting media of the eye, is likewise an ellipse with its axes corresponding to the meridians of least and greatest refraction. Moreover, the ellipse is so large that the small part of it that is seen by the observer passing across the pupil space appears almost straight, as, indeed, does the edges of the circular image in the non-astigmatic eye. When, however, there is an obliquity of the axis of the faulty meridian, and the mirror is rotated horizontally, we will say, the shadow does not appear to pass horizontally across the pupil, but in a direction at right angles to the axis of ellipse. You can demonstrate this experimentally by holding a body with the straight edge behind a round opening in a board, as A B Fig. 5, and moving it horizontally to C D. Although the movement may have been strictly horizontal, the apparent movement, as seen through the opening, will be in the direction of E, at right angles to the edge. So you have only to make the rotations of the mirror horizontally and vertically and the direction in which the edge of the shadow moves will indicate the direction of the faulty meridian.

FIG. 5.



To determine the amount of astigmatism, the same plan precisely is to be followed as in the determination of general ametropia—that is, we work out the refraction in each meridian separately with spherical lenses or by finding the point of reversal of movement, in the manner already indicated. In these examinations of each separate meridian we should always make the rotation of the mirror strictly at right angles to its axis and in the direction of the shadow movement, otherwise there are likely to be confusion and error, particularly when one meridian is at or near 45°.

When the kind and degree of the astigmatism have been thus determined, a cylinder suitable for the correction is placed in the frame with the axis in the direction indicated in the examination. The shadow movement should then be the same on rotation of the mirror in all directions; and when there is general ametropia present (compound astigmatism), the addition of the correcting spherical lens should give emmetropic movements.

A few general observations and we are done. The examination is somewhat easier when the pupil is large, but the necessity for a mydriatic is felt far less in this than in the direct ophthalmoscopic method. The flame should be behind and, by preference, above the head of the patient and the face as free as possible from light other than that from the mirror. It has been called a simple method of testing the refraction, and so it is; but simple as it is, it cannot be mastered without painstaking care as to the smaller details; and considerable experience is necessary before it can be executed with the rapidity and certainty of which it is capable, and which are among its recommendations to the practitioner. It will not supplant all other means of determining refraction, but it is certainly scientific, as we trust we have shown, and by care and patient practice can be made as reliable as any.

ORIGINAL ARTICLES.

THE POISONOUS EFFECTS OF CIGARETTE-SMOKING.

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THE fact that cigarette-smoking produces physiological effects differing to some extent from those of the cigar has led me to make the experiments which I record here, tending toward an explanation of it. The frequently ascribed cause of the difference: that of the adulteration of cigarrette tobacco with opium and other drugs and also the presence of arsenic in the paper are for many reasons unsatisfactory and insufficient. It is true, no doubt, that the tobacco in many of the less expensive brands is adulterated with cheap drugs and artificial flavors and that in the more expensive grades opium may be used; but I believe it to be equally true that many cigarettes are made of tobacco which is free from sophistication. The presence of arsenic in the paper is entirely out of the question.

Before describing the experiments in detail, I shall discuss "smoking" in general. In "smoking" it is, of course, necessary that the tobacco should undergo combustion to a greater or less degree. The principal elements found in tobacco are carbon, hydrogen, nitrogen and oxygen, and, of these, the carbon and hydrogen are combustible, while the nitrogen and oxygen are non-combustible.

Besides combustion, destructive distillation takes place in the pipe, cigar or cigarette, as the result of the heat and the exclusion of the oxygen of the air which has been completely used up in passing through the red-hot burning tobacco, in front of that which the fire has not yet reached. The products of this destructive distillation are ammonia, a yellow and very poisonous substance of disagreeable odor, called nicotianine, some nicotine (but most of

the latter has been destroyed by the heat) and many other products of minor importance.

The result of the combustion of the hydrogen referred to previously is water; and the products of the combustion of the carbon are carbonic acid gas, or carbon dioxide, and carbonic oxide, or carbon monoxide. Carbon dioxide is the result of the complete combustion of carbon, and carbon monoxide is the result of the semi-combustion of carbon.

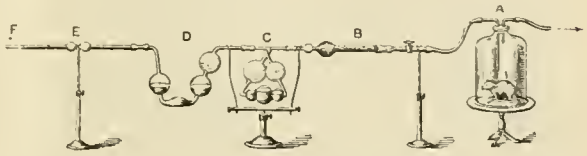
What is known, then, as tobacco smoke is a mixture of the products of combustion and of destructive distillation of the tobacco with the nitrogen of the air. The products of the combustion of the carbon predominate, if measured by volume, and of these carbon monoxide is in excess of carbon dioxide for the following reason: When carbon is burned in an excess of oxygen the result is carbon dioxide, and when this carbon dioxide comes in contact with red-hot carbon it is deoxidized and carbon monoxide is formed. This is seen in the combustion of charcoal, coke or anthracite in a grate or stove; the air passes through the grate bars and comes in contact with the red-hot carbon and carbon dioxide is formed: this gas is impelled by the draught to pass through the bed of glowing coals, and, in so doing, it is reduced to carbon monoxide, which, when it reaches the top, encounters a draught of air and burns with a pale blue, lambent flame, becoming oxidized to carbon dioxide again. This is similar to what takes place at the end of a cigar or cigarette or in a pipe, where there is a layer of fire from $\frac{1}{64}$ to $\frac{1}{16}$ of an inch in thickness, and as the air is drawn through it, carbon dioxide is first formed; on passing through the hot carbon this is reduced to carbon monoxide, and, as such, it is drawn into the mouth, for when it passes beyond the fire there is no air or oxygen to convert it back to carbon dioxide.

Now let us consider the properties of these products of the combustion of carbon: carbon dioxide will neither burn nor support combustion. It fails to support life, but is not poisonous; it simply produces death by suffocation. On the other hand, carbon monoxide does not support combustion, but burns with a pale blue flame. It fails to support life because it is extremely poisonous, and this is due to the affinity which it has for the hemoglobin of the blood. It has the power to expel all of the dissolved and loosely combined oxygen from the blood, and it converts the oxyhemoglobin into carbonic-oxide-hemoglobin, which, of course, results in death. The blood thus affected acquires a florid arterial hue, which differs from the normal color of the blood by its persistence. An animal plunged into an atmosphere of carbonic oxide, dies instantly, and, when small quantities mixed with air are breathed, headache, giddiness and insensibility readily occur. Death from carbonic oxide is easily proved by a spectroscopic examination of the blood of the victim.

There is a difference in the methods of smoking a cigarette and a cigar or pipe. In the two last-mentioned, the smoke is simply drawn into the mouth and expelled directly therefrom or through the nose, while the experienced cigarette-smoker will inhale the smoke—that is, draw it to a greater or less extent into the air-passages and in some cases to the greatest depth of the lungs, and thus the absorption of the carbonic oxide and other gases will take place very rapidly, causing more or less deoxidation of the blood and thereby impairing its power to build up the wasting tissues of the body.

Acting upon this theory I proceeded to experiment on animals and obtained for the purpose some mice. The animal to be experimented with was placed in a glass bell-jar, into which the smoke of a cigarette mixed with air could be drawn as rapidly as desired by means of a laboratory aspirator.

In the first experiment the smoke was purified as much as possible, and the atmosphere breathed by the animal was practically oxygen, nitrogen and carbonic oxide. The apparatus employed is shown in the accompanying figure.



The cigarette F was loosely inserted in the end of the tube E having two bulbs. D and C are bulbs containing a solution of potassium hydrate to absorb the carbon dioxide and any acids or condensable bodies not deposited in E. B is a tube containing solid potassium hydrate broken into small lumps, which retained any carbon dioxide that may have escaped the bulbs C and D. The animal was placed in the bell-jar and the apparatus connected together as shown in the figure. The aspirator, which was connected with the rubber tube leading from A, was turned on so as to draw a slow current of air through the apparatus in the direction indicated by the arrow. The cigarette was then lighted and in twenty-two minutes the animal was dead.

On examination of the blood of the animal by the spectroscope it was found that all of the oxyhemoglobin had been converted into carbonic-oxide-hemoglobin, which showed that carbonic oxide was the cause of the death. This experiment was repeated and the result was the same; the animal died in twenty-five minutes, and the spectroscope revealed the same condition of the blood.

A third experiment was made without the bulbs C and D and the tube B. The tube E, carrying the cigarette F, was connected directly to A, and thus

the smoke was drawn into the bell-jar without the removal of any of its original constituents. In this case the animal died in six minutes, and the examination again showed that the carbonic oxide was the immediate cause of death, proving that it was the most noxious constituent of the tobacco smoke. The time required to produce death in the last experiment was about one-fourth that required in the first and second. This was probably due to the fact that in the latter the smoking was done more rapidly than in the preceding, owing to the lessened resistance in the apparatus and the difficulty encountered in reducing the force of the aspirator. In each case, however, the amount smoked up to the time of death was about the same, one and one-fourth cigarettes.

From these experiments I feel justified in drawing the following conclusions:

1. That carbonic oxide is the most poisonous constituent of tobacco smoke.

2. That more injury results from cigarette than cigar- or pipe-smoking, because, as a rule, the smoke of the former is inhaled.

3. That cigarette smoking without inhaling is no more injurious than pipe- or cigar-smoking.

4. That the smoke of a cigar or pipe, if inhaled, is as injurious as cigarette smoke inhaled.

5. That the smoke from a Turkish pipe, if inhaled, is as injurious as that of a cigarette inhaled.

In these experiments I was ably assisted by Mr. W. J. Pulley, who was at the time doing special work in physiological chemistry under my direction.

THE NATURE OF THE ROTATION WHICH THE HEART UNDERGOES IN ACQUIRED DEXIOCARDIA, AS SHOWN BY THE AUTOPSIES IN TWO CASES.

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LATERAL displacement of the heart is of interest chiefly to the pathological anatomist, and from the standpoint of diagnosis. Its bearing upon the therapeutic measures employed in any case in which it occurs is too slight to be here considered. Neither is it desirable to review the literature of the subject at length, inasmuch as it is coextensive with that of diseases of the heart and lungs. Following in the footsteps of Stokes, all writers on diseases of the chest have discussed at greater or less length the various displacements which the heart may undergo as a result of abnormal conditions of the pleuræ or lungs as well as of itself and its great vessels. Of the many changes in position to which the heart may be subjected, it is the displacement to either side, and, again, that to the right, known as dexiocardia, which have aroused the greatest interest. There are several reasons for this: 1. The pulsation of the heart in the right side of the chest is a more startling deviation from nature than any displacement that still keeps the organ to the left of the sternum. It early arrests the patient's attention and excites his apprehension, while it is hardly possible to be overlooked by the physician even without the aid of a careful physical examination. 2. Cardiac displacements to the right or left are the results of intrathoracic affections of such severity as to concentrate the attention upon the chest, and they take place with greater rapidity than those in which change of position accompanies a lesion of the heart itself or its supports. 3. Transposition of the heart to the right of the sternum not only constitutes a phenomenon readily discoverable from without, but necessitates grave alteration in the anatomy of the parts, in consequence of which it would seem that profound functional disturbance must be inevitable. It is not difficult to understand, therefore, why of all cardiac displacements dexiocardia should awaken the deepest interest.

The chief causes of acquired dexiocardia are: 1, effusion of air or liquid into the left pleural cavity by which the heart is pushed over into the opposite side; 2, inflammation of the right lung with its investing membranes, which leads to their adhesion with the pericardium, and, through subsequent contraction, to the drawing of the heart to the right of the median line. As might be expected, conditions that exercise traction upon the heart operate more powerfully than such as push it out of position toward the right. In cases of left-sided effusion sufficient to crowd the heart beyond the median line, the organ is generally seen to pulsate in the neighborhood of the right nipple, somewhat to the inner side and "between the fifth and seventh ribs."[1] The effusion is rarely so great as to push the heart's apex to the outer side of the right mammary line. Hence the organ comes to occupy a position on the right side almost identical with that it formerly held on the left. In such cases, too, the transposition may take place with remarkable rapidity. Thus Walshe observes: "In cases of left effusion the organ may pulsate outside the right nipple, and thirty-six hours will sometimes suffice to produce this amount of malposition."[2]

When the dexiocardia is owing to traction through the shrinkage of pleuro-pericardial adhesions with, at the same time, cirrhosis of the lung, the heart may come to lie wholly to the right of the sternum. "Dr. Greenhow[3] gives a case of contraction of the right lung, the precise condition of which was un-

[1] Stokes on Diseases of the Chest (Dr. Hudson). Sydenham edition, London, 1882, p. 508.

[2] Walshe on Diseases of the Lungs. Third edition, 1860, ¾ 778.

[3] Path. Trans., xix. 159.

known, observed by him during life, in which the heart was displaced very far to the right and upward, and was felt beating in the third and fourth spaces over an area of three inches by three inches and a half, of which the right nipple formed the central point."[1]

I have reported a case[2] of cirrhosis of the right lung in which the heart occupied a transverse position wholly to the right of the sternum. It formed a pulsating prominence extending from a line three inches below the clavicle to the upper boundary of hepatic dulness and from the right border of the sternum to a point two and three-fifths inches outside of the nipple, a transverse distance of five and a half inches.

That the heart can become so extensively displaced without serious interference with its function is not the least remarkable fact associated with this condition, for whatever disturbance of the general health is manifested appears to me to be the result not so much of the change in the position of the heart as of the concomitant disease of the lung or pleura. *Apropos* of this Schroetter remarks: "The change in the position of the heart as such, as a rule, occasions no functional disturbance. The more extreme displacements, however, may, from interfering with the normal contractile power of the heart or insufficient filling of its cavities, give rise to a tendency to stasis and its results."[3]

Whether any change in the cardiac sounds, and, if so, what change may be produced by these dislocations, is a question of considerable interest. Relative hereto Stokes observes: "The experience of upward of twenty cases has convinced me that this dislocation of the heart, even when at its greatest degree, does not cause any alteration in the natural sounds of the organ; indeed, it is singular how little its action is excited in many of these cases."[4] In this respect Walshe[5] asserts that his experience accords with that of Stokes. Hope, on the other hand, cites one of his cases in which murmurs were heard with the first sound, and queries, "Is it, therefore, possible that a twist given to the aorta, or pressure of the vessel against the ribs, may be the cause of a murmur under such circumstances?"[6] Schroetter coincides with Hope in the opinion that adventitious sounds may be generated by the twisting or bending of the great vessels. He says, "in such cases murmurs may be developed over the great vessels which simulate lesions of the valves."[7] He cites a case of great displacement of the heart to the left and downward, from pleuritic effusion, in which he heard a systolic murmur during life, but was not able to discover any lesion of the valves after death, and hence concluded that the murmur had been due to stretching of the aorta. In my case cited above there was a systolic bellows murmur heard most distinctly at a point two inches above the right nipple, while at the same spot the second sound became distinctly reduplicated. Nearer the sternum the murmur was lost, the first sound was impure and the highly accentuated second appeared at times to merge into a short, rough bruit. As will be seen later on, in the description of my two other cases, murmurs were likewise audible. Unquestionably, in many cases, murmurs may exist which depend upon an alteration in the quality of the blood rather than any distortion of the heart or large vessels. Nevertheless a moment's reflection upon the probable mode of production of blood murmurs makes it appear hardly possible for an acquired dexiocardia to exist without the development of murmurs. More or less change from the normal configuration of the heart and great vessels is almost inevitable and hence gives rise to conditions favorable to the production of fluid veins—that is, sonorous vibrations within the blood stream. Moreover, it is not impossible for compression or twisting of the organ so to alter the shape of the *ostia* as to render the respective valves relatively incompetent.

Such conjectures are interesting, but the subject of chief concern relates to the deviations from their natural configuration which the parts present *post-mortem*. Were the apex and body of the heart no more movable than the base, the organ would necessarily be moved over toward the right *en masse* while still keeping its relative position to the long axis of the thorax. As it is, to quote the words of Sibson, "the apex forms throughout the lowest part of the heart, and it describes a segment of a circle or arc as it sweeps round from its natural position in the left side of the chest to the position of extreme deviation to which it may attain in the right side of the chest."[1] To enable the apex to make so extensive an excursion, the body of the organ has to undergo rotation upon its long axis, and it is in thus revolving that a twist is likely to occur. Most authors do not describe the manner in which the organ rotates. Sibson, however, whom contemporaneous English writers appear to accept as authority on the subject, discusses at some length the mode of rotation occasioned by lateral displacement. He illustrates by diagrams the state of things found by him in several cases. He says, "as the heart passes over from the left to the right side of the chest it gradually and necessarily turns over upon itself, hinging, so to speak, upon the vessels by which the heart is attached

[1] Reynolds's System of Medicine (Hartshorne), vol. ii. p. 447.

[2] A remarkable case of complete dexiocardia. THE MEDICAL NEWS, October 25, 1884.

[3] Ziemssen's Cyclopædia of Medicine, vol. vi. p. 184.

[4] Loc. cit. [5] Loc. cit.

[6] Hope on the Heart, American edition, 1846, p. 490.

[7] Loc. cit.

[1] Op. cit., p. 444.

to the lungs and the system, so that the right auricle is hidden, all but the top of its appendix, and instead of the right ventricle being in front of the left ventricle, all but its left border, it is the reverse, for the left ventricle hides a large portion of the right ventricle. The part of the right ventricle exposed is, however, not that near the apex, but near the pulmonary artery. The ascending aorta and pulmonary artery change their direction; they move to the right at their respective origins, but higher up they are retained in their places, the arch of the aorta at the end of its transverse portion, and the pulmonary artery at its bifurcation. The aorta and pulmonary artery, therefore, present not a front but a profile view, with a direction to the right."[1]

Concerning the cardiac revolution in these cases, the following is expressed by J. Mitchell Bruce:

"The tendency that the heart has to rotate or roll on one or the other of its axes is also affected by its attachments at the root. If the heart lay free in the pericardial cavity, there would be no limit to such rotation under the influence of pressure or traction. The base being fixed, rotation is greatly limited and does not occur to any extent except around the longitudinal axis; the left ventricle, for example, being rotated more forward or more backward as the case may be. Rotation around the transverse horizontal and the antero-posterior axis is very limited."[2]

From the foregoing it would seem that Sibson considers the rotation likely to take place in such a manner as to bring the left ventricle to the front; while Bruce contents himself with the statement that the left ventricle may roll either forward or backward.

Schroetter, on the other hand, expresses himself rather more positively when he says, "turning of the heart on its long axis generally occurs in such a manner that the right auricle and ventricle come to look more directly forward and the left cavities backward." "Bamberger relates a case of pneumothorax on the left side, in which the heart was not only pushed over to the right, as is usual, but had so revolved on its long axis that the greater portion of the left ventricle looked forward. This revolution was so considerable that torsion of both the great vessels could be easily recognized. It is hard to picture to one's self how this came to pass, inasmuch as there were no contracting bands found here, and it may be that, with an original tendency of the heart in that direction, a weak spot in its suspension gave occasion to the displacement and torsion."[3]

If the anatomy of the great arteries be considered, it would seem as if the heart could not well rotate in any other manner than as described by Schroetter —*i. e.*, from right to left backward. Were rotation of the entire organ to take place in the opposite direction—that is, from behind forward and from left to right—it would cause the pulmonary artery and its right branch to be wound tightly about the base of the aorta, thus greatly constricting its lumen. Fortunately the firm fixation of the base of the heart prevents this, and, as shown by my Case II., the rotation in this direction is achieved by a twist in the body of the heart. Doubtless, as intimated by Schroetter, in cases of dexiocardia due to pressure and without adhesions, rotation is more easily accomplished in the direction he describes. Yet, Sibson's Diagram 76, illustrating the rotation of the left ventricle in front of the right, represents what occurs in cases of left pleuritic effusion.

Case I.—Walter F., æt. three years and four months, Irish, was first seen and examined by me May 21, 1884. There was history of some sort of intrathoracic disease during the first few weeks of life. He was extremely delicate up to his second year and always very prone to colds and coughs.

Status præsens.—Is fairly nourished; plays with other children, but is peevish and backward in mental devolopment; appetite capricious and bowels inclined to be too relaxed; has a loose cough and gets blue in the face when playing or running.

Inspection.—Pupils normal, slight cyanosis of the face and congestion of the veins of the chest, chiefly on left side; flattening of the anterior surface of left thorax, most marked in submammary region; a pulsating area at right of sternum, pulsation seen in third, fourth and fifth spaces; flattening of the latero-posterior and inferior aspect of right side of chest; epigastric pulsation.

Palpation.—Cardiac impulse diffused and apex-beat in fifth space below right nipple, not very forcible; pulse rapid, weak, regular, rate not counted.

Mensuration.—Left side at level of second rib, 26 centimetres and at fifth rib 24.9 centimetres, while on right side at corresponding levels the measurements are 28 centimetres and 27 centimetres respectively.

Percussion —The note is resonant over left side, specially full at posterior base; no cardiac dulness at left of sternum, but beginning at its left edge above, an area of flatness passes downward and outward to the outer side of the right nipple. From this point the percussion note shades gradually off into faint resonance behind.

Auscultation.—Exaggerated puerile respiration throughout left side, with rhonchi at base. Upon right side posteriorly very feeble bronchial breath-sounds, and at base laterally dry friction sounds. The heart's sounds are loud, and the first somewhat obscured by a systolic murmur most distinct at apex but audible throughout the præcordia. This murmur seems composed of two, a short, low, harsh bruit that merges into a high-pitched bellows-like whiff at close of systole. The second sound is greatly accented, prolonged and impure.

Diagnosis.—Acquired dexiocardia; compression of right lung; old pleuritic adhesions of right side: secondary chronic bronchitis of left lung; possibly old adhesions of the left pleuræ.

[1] Op. cit., p. 445.
[2] Dictionary of Medicine, Quain, Amer. ed., p. 591.
[3] Op. cit., p. 177.

During the ensuing summer the little patient remained in fair health, but as winter approached his cough and expectoration increased, appetite failed, strength waned and in spite of appropriate treatment he died January 14, 1885, of broncho-pneumonia.

Only a partial *post-mortem* examination was permitted by the family in the presence of the father, and hence it was impossible to obtain the thoracic organs. The autopsy was conducted by Dr. F. C. Schaefer, Professor of Anatomy at Chicago Medical College, in the presence of Dr. W. W. Jaggard, a student and myself.

The following is the report, together with the illustration, as kindly furnished by Dr. Schaefer. The autopsy took place sixteen hours after death.

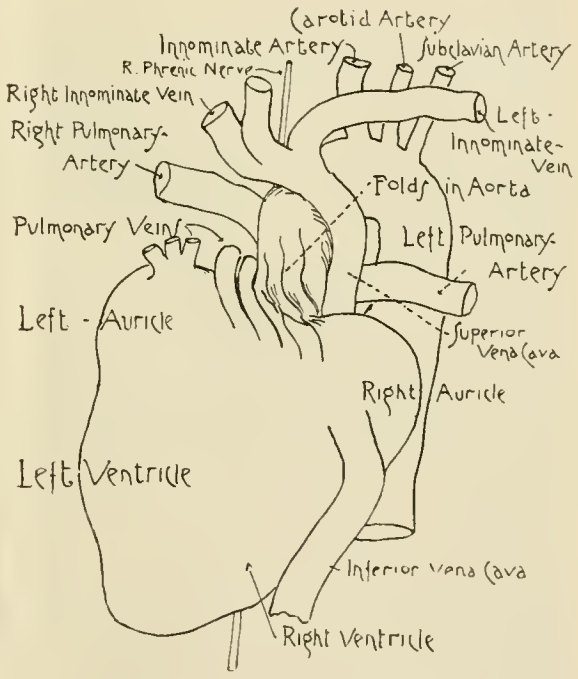
The right innominate vein was adherent to the second costal cartilage and extended partly across the anterior surface of the aortic arch toward the left side having been carried over by the rotation of the heart from right to left, forward. The pericardium was attached to the right half of the sternum and to the corresponding right costal cartilages: also to the rib surfaces about one inch to the right of the cartilages. The right lung was crowded back into the fossa between the bodies of the vertebræ and the ribs, and was almost completely collapsed. The apex of the heart pointed an inch higher on the right side than the usual position on the left side. The extreme left boundary of the pericardium was *two* inches to the left of the median line, while the extreme right boundary was placed at the distance of three and one-half inches to the right of the median line. Upon opening the pericardium a small quantity of serum escaped from the sac, and fresh deposits of lymph were visible upon the heart's surface. The sac was unusually large. The first section of the aortic arch joined the second section at an obtuse angle, owing to the elevated position of the heart. The right ventricle presented to the front. The posterior surface of the right auricle could be seen in front and to the left, its anterior surface having been turned back looking toward the vertebræ. The left auricle, twisted upon its vertical axis, came partly into view in front and to the right. The inferior vena cava also twisted upon itself, from right to left, was visible in front, near the left side of the heart (Fig. 1). The right pulmonary artery was on a plane superior and posterior to that of the left one. The pulmonary veins were greatly stretched,—the right one was almost tense. The three large branches of the aortic arch were in the normal position. The heart was enlarged a little more than one-half and twisted upon its vertical axis from behind forward, and from right to left. Distinct folds existed in the first section of the aortic arch. These folds were almost vertical in direction, and were obliterated by rotating the heart in the reverse direction. This portion of the aortic arch was dilated to the extent of two diameters, and its walls were very thin. At the junction of the first and second sections of the aortic arch there existed a firm, cord-like annular constriction almost completely surrounding the vessel. This ring-like band was formed by the superior vena cava and the right innominate vein; these vessels having accompanied the right auricle in its rotation; the extent of this rotation having been so great as to cause the anterior surface of the right auricle to look backward, thus crowding the superior vena cava under the arch of the aorta; the right innominate vein joining the superior vena cava in front of the aorta as represented in Fig. 1.

The left innominate vein was folded back just before it joined the right vein to form the superior vena cava. The right phrenic nerve descended behind the heart.

The auricles were a trifle enlarged and very irregular in outline, being curved upon their vertical axes. Both ventricles were enlarged, the right one about one-third; the left one to about three times the normal size. Its walls were about half the usual thickness. This great increase in size of the left ventricle was doubtless caused by the resistance occasioned by the constriction of the aortic arch. (Fig. 1.)

There can be no doubt about the direction of rotation in this case. The anatomical relations of the various parts connected with the heart indicate it too plainly to admit of a wrong interpretation. (Fig. 1.)

FIG. 1.



CASE II.—George E., æt. eighteen years. American, was seen for the only time March 31, 1885. History: His older brother died of consumption a year or two ago. Patient has been ill for over a year, and during the summer of 1884 was so ill with some intrathoracic inflammation that he only recovered with difficulty and slowness. Since then he has noticed that his heart beats on the right side. *Status præsens.* Symptoms: profound weakness, anorexia and diarrhœa, daily fever, annoying cough with but slight expectoration. Inspection: patient sits propped up in an easy chair, is extremely weak

and emaciated, phthisical habitus marked, and breathing so superficial as to cause scarcely perceptible movements of the chest. Cardiac impulse visible just below the right nipple. Pulse 124, very feeble, and respirations 38.

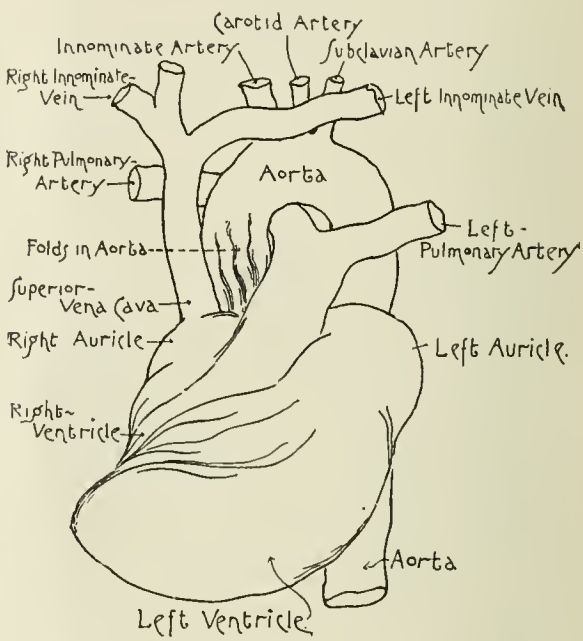
Owing to the prostration of the patient only a partial, hasty physical examination could be made and my notes are very meagre, as follows: Percussion: from junction of second costal cartilage with right border of sternum a line of dulness runs obliquely downward and outward to half an inch outside of right nipple, thence passes along the lower border of the fourth rib to the sternum, and from this point upward obliquely to the junction of the left second costal cartilage with the sternum, and thence across this bone to the starting point. The upper margin of hepatic flatness is at the upper border of the sixth rib. Percussion note over the balance of this half of the thorax is faintly resonant, but not so much so as over left lung, where it is hyper-resonant and tympanitic, very drum-like. Auscultation: over right lung, posteriorly, respiration is bronchial and voice bronchophonic and râles of indefinite character. Heart sounds are accented and a systolic bellows murmur accompanies the first over the body of the heart.

During the hasty exploration of the right half of the chest just recorded I made two or three percussion strokes below the left clavicle to compare its note with that of the right and elicited the highly resonant, tympanitic note mentioned. Upon finishing with the right side I prepared to examine the left, but was obliged to desist because of the extreme fatigue of the patient. This was a matter for regret at the time and still more in the light of the *post-mortem* revelation.

The diagnosis was tubercular phthisis in the last stage, dexiocardia as a result of previous pleuritis and contraction of the right lung.

I did not again see the patient during his life, but June 27th was informed of his death two days previous. The consent of the family was obtained to a *post-mortem* examination which, as the funeral was to take place in two hours, had to be hurried and incomplete. It was not possible to obtain any specimens. Dr. W. W. Jaggard kindly conducted the autopsy, assisted by Dr. Charles Caldwell; a student and myself were also present. Necropsy: external appearance not noted because of too great *post-mortem* changes. The chest having been opened —pleuritic adhesions very firm on both sides and separated with difficulty. The pericardium contains no fluid, but is firmly adherent to the heart. Miliary tubercles on both its visceral and parietal layers, most numerous at the base. The left half of the thorax is converted into a complete cavity, no lung tissue found, but the cavity is lined by a cheesy material closely resembling pus. About a pint of pus found at bottom of the cavity. All the bronchi leading into this cavity are occluded. The right lung is crowded back, infiltrated with tubercles and displays numerous calcareous deposits. The heart lies with its left border near the middle of the sternum and is rotated from left to right forward, so that the left ventricle is in front. The apex is at the right of the sternum. The pulmonary artery runs up from the middle of the sternum toward the left, covering the aorta. The aorta is twisted on its axis about ninety degrees backward. The superior vena cava lies to the right and behind the aorta. The inferior vena cava is slightly twisted backward to the left. Both ventricles are thin-walled and dilated. There is a double twisting of the heart, both on its long and transverse axes. The liver is in its normal position. Owing to limited time the abdominal cavity is not examined.

FIG. 2.



These two cases are of interest, as showing, conclusively, that the rotation of the heart in acquired dexiocardia may take place in either direction, and that no law can be formulated concerning it. The factor determining the direction of the rotation is the point on the pericardium at which the adhesion between it and the pleura takes place and not anatomical arrangement of the parts. If this be on the posterior aspect well over to the left, the turning will be backward and from right to left; if, on the contrary, the adhesions pull upon the anterior surface, the heart will have its left ventricle drawn to the front.

Whatever be the nature of the rotation, it seems hardly possible for the resulting distortion to exist without the generation of murmurs independent of blood-murmurs. The short rough bruit heard in the case of Walter F. was doubtless thus occasioned.

Concerning this case it only remains to add, it is truly remarkable that the changes induced in the heart and vessels did not terminate the child's life long before. The diagnosis was confirmed in every particular, with the exception of previous pleurisy of

the left side. The evident flattening of this half of the chest anteriorly, which led me to my supposition, was probably caused by atmospheric pressure upon the yielding parietes when the heart was no longer *in situ naturale*.

The second case is interesting and instructive from another standpoint than that of the cardiac changes —that is, as regards the lungs. Evidently the patient had lived for months upon a mere *modicum* of the oxygen which one would suppose even his system would need. This must have been rendered possible only by the extreme anæmia. Not only was but little oxygen conveyed to the tissues, but the limited number of red blood-corpuscles carried too small an amount of carbonic acid to the respiratory centres to occasion any sense of dyspnœa. The second feature of interest was the absolute destruction of the left lung with the occlusion of the bronchi, by which the half of the thorax was converted into a pyopneumo-thorax. Had the strength of the patient permitted a careful examination of the left side, I must have discovered the condition. As it was, I only tapped the left infraclavicular region twice or thrice in the course of the exploration of the opposite side to compare the percussion note, and was struck by the highly tympanitic quality and low pitch of the note obtained. There was no *bruit de pot fêlé* and there could not have been since the obliterated bronchi prevented all communication with the external air. The lowness of the pitch was due to the size of the cavity, which permitted vibrations of a length extraordinary in the human body. Had circumstances permitted, a succussion sound could have been elicited. Not having expected such utter disorganization of the lung, I was astonished and mortified by the revelation of the necropsy. Reflection upon it, however, has convinced me that, as things were, the failure to recognize the condition was excusable.

THE PROTEIDS OF THE URINE, WITH A COMPARISON OF THE TESTS FOR ALBUMIN.[1]

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BEFORE taking up the immediate subject of this paper, I think it will not be amiss to say a few words in regard to the nature of the proteid substances present in the urine. To the average physician the phrase "albumin in the urine" is quite indefinite, or, rather, I should say, too definite, inasmuch as it conveys to him the idea that he is dealing with one individual substance. This, however, is far from being the case, for we know of at least four well-defined proteids that may occur in the urine. Although we do not know anything about the clinical significance of some of these substances, nevertheless, it is important for us to understand something of their nature and relationship, since it is only in this way that we can hope to attain definite knowledge whereby some of the hitherto obscure phases of disease may be rendered clear.

I have just said that the urine may contain at least four proteids. These are: *serum albumin* or albumin proper, *globulin*, *hemi-albumose* and *peptone*. In the ordinary methods of testing for albumin, the first three members may be readily mistaken one for another, and, indeed, this has been rather the rule than the exception.

The most important of these proteids is serum-albumin, and it is this substance which is usually understood when we speak of "albumin" in the urine. As it occurs, however, in this secretion, it it usually accompanied by larger or smaller quantities of globulin, and, in some instances, even peptones may be present. Our ordinary tests for serum-albumin are also responded to by globulin; and, hence, when applied to an albuminous urine, they indicate, as a rule, a greater amount of serum-albumin than that which is actually present. The number of cases in which globulin occurs by itself, without any serum-albumin, is very small. Consequently, when a specimen of urine under examination yields an albumin reaction, we are justified in assuming the presence of serum-albumin, though it should be carefully borne in mind that the presence of globulin will heighten the reaction.

This proteid is identical with the serum-albumin of the blood and, therefore, belongs to the group of native albumins, of which egg-albumen may be considered a typical representative. It is readily soluble in water, but is insoluble in alcohol. Like other proteids, it is soluble in acids and alkalies, yielding corresponding acid and alkali albuminates. It is coagulated by heat and by acids and, furthermore, gives precipitates with most of the alkaloidal reagents.

Just as, in the blood, we have two well-defined proteids — serum-albumin and serum-globulin, so, also, in the urine, do we find, at times, these two bodies accompanying one another. The globulin which occurs in the urine is, without doubt, identical with serum-globulin, or, what is the same thing, paraglobulin. Usually it accompanies serum-albumin, and may be present in almost all varieties of albuminuria, though in variable quantity. According to Hammarsten,[1] it constitutes from 8.13 to 60.24 per cent. of the total proteids in albuminous urine: whilst still more recent observations of MacGuire[2] indicate that globulin can exist in the urine by itself, even without any serum-albumin being

[1] Read before the Calhoun County Medical Association, Battle Creek, Michigan, May 29, 1888.

[1] Neubauer u. Vogel: Harnanalyze, 1881, p. 127.

[2] London Lancet, June, 1886, pp. 1062, 1106.

present. Thus, in three cases of cyclic or functional albuminuria and one of puerperal albuminuria, he found the proteid of the urine to consist solely of globulin. A short time ago I had under observation what appeared to be a case of functional albuminuria. The individual was a student, apparently in good health; indeed, to use his own words, he "never felt better in his life." The urine had a specific gravity of 1024, was acid in reaction and, on standing, yielded a deposit of uric acid. When passed after rising and just before breakfast, the urine contained no albumin, but shortly after breakfast it appeared. Globulin was found to be present, but, unfortunately, I am unable to give the exact figure as to the amount present.

Globulin is an amorphous, pulverulent powder, insoluble in water and alcohol. In the urine it is held in solution, not by the water, but by the salt; and hence, when globulin-containing urine is diluted with water it yields a cloudy precipitate, inasmuch as the salt, owing to the dilution, is no longer capable of holding the globulin in solution. In other words, globulin is soluble in dilute salines, but is insoluble in water or in concentrated salines. From dilute solutions it is precipitated by passing carbonic acid; but a better method for the isolation of globulin is that of Hammarsten.[1] It is based upon the fact that globulin is insoluble in concentrated salines, and is essentially as follows: Finely pulverized magnesium sulphate is added to the neutral or but slightly acid urine in successive portions till complete saturation is reached—that is, to the point when the urine ceases to dissolve any more of the salt, even on prolonged standing. The globulin is thus precipitated, whilst the serum-albumin remains in solution. The precipitate is gathered upon a filter and washed thoroughly with a saturated solution of magnesium sulphate. The globulin can now be dissolved from the precipitate by the aid of a dilute saline solution, and the amount determined by precipitation and subsequent weighing. The albumin can be determined in the combined filtrate and washings by precipitation with heat and nitric acid. The coagulated albumin is collected upon a previously weighed filter paper, then washed, dried and weighed.

Kühne[2] applied the term hemi-albumose to a group of intermediate proteid products which are formed by the action of digestive ferments or boiling acids on various proteids. It, therefore, occupies a middle position between the genuine proteids—as, for instance, serum-albumin and the final products of digestion, namely, peptones. This peculiar substance was first observed by Bence Jones,[3] in the urine of a case of osteomalacia, and since then has frequently been designated as "Bence Jones albumin." Subsequently, Kühne and Chittenden,[1] as well as Salkowski,[2] have contributed extensively to our knowledge of this interesting albuminoid, which, it seems, is invariably present in osteomalacia. Kühne[3] describes the urine in a case of osteomalacia containing hemi-albumose, as follows: It was yellow, clouded, strongly acid and had a sediment of uric acid, sodium urate, mucous corpuscles and amorphous granules; on shaking, it foamed like soap, but it filtered clear.

The chemical behavior of hemi-albumose is quite peculiar and at the same time distinctive from that of the other proteids that may occur in urine. Thus, when warmed, it yields a heavy, flocculent precipitate, which, as soon as the temperature approaches the boiling-point, redissolves and the solution again becomes clear; but, on cooling, the precipitate reappears. The addition of nitric acid produces a heavy white precipitate, which, when the acid is added in slight excess, redissolves and does not separate on boiling and subsequent cooling. When the acid is added in quantity insufficient to dissolve the precipitate and the liquid is then warmed, the precipitate will dissolve just below the boiling-point and will separate out again on cooling. No precipitate is produced on neutralization with alkali or on the addition of dilute or concentrated acetic acid, or by passing carbonic acid through the diluted urine. This last reaction distinguishes it from globulin and can be made use of to separate these substances.

Hydrochloric acid acts like nitric acid, but the urine, on boiling with an excess of the acid, assumes a violet color. It gives proteid reactions with Millon's reagent and also with copper sulphate and alkali (biuret). Strong precipitates are produced by tannic acid, picric acid, potassium ferrocyanide and acetic acid; also by acetic acid and concentrated salt solution. It is completely precipitable by alcohol and can thus be removed from the urine. The white, flocculent precipitate produced by the alcohol is soluble in water and coagulates at 52° to 60° C. Instead of precipitation by alcohol, it may be isolated from the urine, according to Salkowski, by strongly acidulating the urine with the acetic acid and then saturating it with common salt. The precipitate, after washing, can be purified by dialysis.

A very peculiar characteristic of hemi-albumose is that it may exist in the urine in *deposit* as well as in solution. When in solution it coagulates at about 50° C. (122° F.), and, on further heating, as already stated, the precipitate redissolves and then, on sub-

[1] Zeitschr. f. Anal. Chemie, 24, 481.

[2] Verhandl. d. naturalist.-medecin. Vereins zu Heidelberg [N. F.], 1, 236.

[3] Ann. Chem. u. Pharm., 67, 97.

[1] Zeitschr. f. Biologie, 19, 159.

[2] Virchow's Archiv, 81, 552.

[3] Zeitschr. f. Biologie, 19, 209.

sequent cooling, reappears. Kühne has named the variety which exists in solution as genuine hemi-albumose and the insoluble variety as coagulated hemi-albumose. Now, this insoluble or coagulated hemi-albumose occurs in digestive fluids, and may also occur in urine as an amorphous granular deposit. The nature of this amorphous deposit can be ascertained in the following manner.

It is first extracted with water, then with dilute acetic acid or alkali. The coagulated hemi-albumose is easily soluble in very dilute acids and alkalies, and the solution on neutralization can be precipitated by alcohol. The precipitate thus obtained is first washed with alcohol and then dissolved in water. On the addition of a little common salt and warming, it should coagulate at between 40° to 60° C. (104° to 140° F.), and clear up again at near the boiling point.

In the presence of serum albumin and globulin, it can be detected by saturating the urine, strongly acidulated with acetic acid, with sodium chloride, boiling and filtering whilst hot. The albumin and globulin remain behind on the filter, whilst the hemi-albumose passes through and separates out as the filtrate cools.

By the term peptone we understand those end-products of the digestion of proteid substances which differ from the albumins proper in their solubility, diffusibility and in not coagulating either by heat or acids. So far as we know, the peptones do not possess the same composition, but differ among themselves according to the source, the particular proteid from which they are derived. The rarity of peptone which occurs in the urine is commonly regarded as deriving its origin from pus corpuscles, which, as we know, may be present in a large number of pathological instances. According to Hofmeister,[1] these corpuscles experience a rapid decomposition, yielding, as one of the products, peptone.

Peptone may occur in the urine in the presence of serum-albumin, globulin or hemi-albumose, though it is not necessarily so accompanied. Indeed, the accompaniment of albumin and its congeners by peptone is rather an exception than a rule; a fact which is all the more striking, since we now know that the normal urine contains peptic as well as tryptic ferments. We would expect on *a priori* grounds, that when albumin, or any other proteid, is present in the urine, it would be acted upon by the ferments normally present and yield peptones. Further investigation is necessary in order to bring out more clearly not only the exact origin of the peptones in the urine, but also the significance they bear, if any, with regard to disease. It should be stated, however, that peptones may occur in the urine of healthy persons, though in very minute quantity.

When peptone is present in the urine in relevant quantity, it constitutes the so-called peptonuria, about which, however, very little is known. Peptones are characterized by their ready solubility in water, great diffusibility and in not giving precipitates with heat or acids. They are furthermore distinguished from albumin, globulin and hemi-albumose in not giving a precipitate with acetic acid and potassium ferrocyanide. They are, however, precipitated by metaphosphoric acid, phosphomolybdic acid, phosphotungstic acid, as well as by tannic and picric acids. The precipitate of the latter redissolves on heating, thus differing from that of albumin. According to Hofmeister,[1] the amount of peptone ordinarily present in the urine is so slight as to be insufficient to yield a precipitate with picric acid.

Peptones may be readily detected in the urine, if the other proteid substances are present or not. In the absence of other proteids the best plan is to add neutral acetate of lead as long as a precipitate forms, then to filter. To the filtrate, which should give no precipitate with acetic acid and potassium ferrocyanide (absence of albumin, etc.), about one-fifth of its volume of concentrated acetic acid is added, and then phosphotungstic acid, acidulated with acetic acid, when, if any peptone be present, a milky precipitate will appear.

In the presence of other proteids, the urine cannot be tested directly for peptone, but these constituents must first be removed. For this purpose the method of Hofmeister[2] is the best one we have and is carried out in the following manner: To about a pint of the urine two and a half drachms of concentrated sodium acetate solution are added, then a concentrated solution of ferric chloride till a blood-red color is developed. The acid solution is now neutralized with alkali as nearly as possible, boiled for a few minutes and, when cold, filtered. If care is taken to have the solution neutral or but slightly acid, all of the albumin, etc., will be precipitated, whilst the peptone will remain in solution and can be detected in the filtrate. This should give no precipitate with acetic acid and potassium ferrocyanide, but if peptone is present it will give a precipitate when it is acidified with acetic acid and an acetic solution of sodium phosphotungstate is added. This is the most delicate reagent for peptone and gives, according to Wolfenden, a distinct reaction in 1 to 100,000.

TESTS FOR ALBUMIN.

The oldest and best known tests for albumin are heat and nitric acid; but, of late years, a large

[1] Zeitschr. f. Physiol. Chemie, 4, 253.

[1] Zeitschr. f. Anal. Chem., 23, 116.

[2] Journal of Physiology, 7, 237.

number of new reagents have been proposed, some of which are of rather doubtful value. It was, therefore, desirable to compare as many as possible of these new tests, not only with reference to their behavior to normal urine, but also with respect to their delicacy in detecting variable amounts of albumin. For this purpose eighteen specimens of normal urine and five albuminous urines, some containing only traces of albumin, were examined with the following reagents, and the results obtained are sufficient to show the utter unreliableness of a large number of these so-called improved tests. It seems to me that the medical profession cannot exercise too much caution in accepting a new test or reagent which is intended to supply the place of the old but reliable ones. Every now and then we see some one come forward with an alkaloidal reagent and launch it forth as a delicate and characteristic test for albumin. These reagents, though they may be exceedingly delicate when pure solutions of albumin are examined, yet, when applied directly to the urine, not infrequently indicate albumin even when it is entirely absent.

1. *Heat and nitric acid.*—Only seven samples of urine gave, on warming, precipitates (of phosphates) which readily dissolved upon the addition of either acetic or nitric acid. That is, to say heat and acetic or nitric acid gave no precipitate in eighteen urines. Nitric acid is to be preferred to acetic acid, inasmuch as the test is much more delicate. If the urine is neutral or alkaline, it should be acidulated with a drop or two of acetic acid. The test is best applied by placing about eighty minims of urine into a test-tube and raising the upper portion to the boiling temperature. Whether a precipitate forms or not, about one-tenth volume (five to ten drops) of nitric acid is added; if a permanent cloud or precipitate remains, albumin is present.

2. *Nitric acid alone. Heller's contact test.*—To about a drachm of urine in a test-tube about half a drachm of concentrated nitric acid is added in such a way that the liquids do not intermix, but form two distinct layers. A grayish precipitate of albumin will soon form at the plane of contact; but when the albumin is present in minute quantity, it is necessary to wait a few minutes. A white, amorphous precipitate of urates may come down when the urine is concentrated, but it is distinguished from that of albumin by forming, not at the plane of contact, but higher up in the liquid and, moreover, by its ready solubility upon the application of heat. The test is very conclusive and extremely delicate. It is said to be capable of indicating as little as 0.003 per cent. of albumin. It was not given by any of the eighteen specimens of normal urine, but failed in the case of one very slightly albuminous urine. This method of testing for albumin is nearly, though not quite, as delicate as No. 1.

3. *Nitric acid and magnesium sulphate* (Roberts's reagent)[1].—This is prepared by adding one volume of seventy per cent. nitric acid (specific gravity 1.42) to five volumes of a saturated solution of magnesium sulphate. The solution is placed in a test-tube and an equal bulk of urine cautiously added, so as to form a layer. If albumin is present, an opalescence will appear at the zone of contact. This test is in every respect inferior to No. 2 and, moreover, gave clouds in six out of the eighteen normal urines.

4. *Acetic acid and sulphate of soda* (Hoppe-Seyler[2]). This test is applied by adding, to about eighty minims of urine previously acidulated with acetic acid, an equal volume of a saturated solution of sodium sulphate and raising the mixture to boiling. A white precipitate or cloud indicates albumin. This test is given preference by Struve,[2] but in this examination it was found to give a very slight reaction with one normal urine, whilst, on the other hand, one slightly albuminous urine failed to respond. In respect to delicacy it is equal to No. 3.

5. *Hydrochloric acid and salt* (Roberts's brine test)[3].—This reagent is a saturated solution of common salt containing one per cent. of hydrochloric acid. It was first proposed by Roberts, but has since been abandoned by him because of its liability to give precipitates in non-albuminous urines. It was found to give reactions with three normal urines. In delicacy it was inferior to any of the preceding and about equal to the heat and acetic acid test.

6. *Picric acid test.*—This was first employed by Galipe,[4] and more recently has been strongly recommended by Johnson,[5] Saul[6] and others. To the filtered urine, free from mucus, under examination an equal volume of a saturated aqueous solution of picric acid is added, when if albumin is present a heavy precipitate will form. As Jaffe[7] has pointed out, picric acid will induce in normal urine, especially on standing, a precipitate consisting of uric acid and of the picrate of the double salt of potassium and creatinin. These, however, are both readily soluble on warming, whereas the albumin precipitate is insoluble. Hence in applying the test any precipitate that appears should be heated. Hemialbumose and peptone yield precipitates with picric acid which are distinguished from that of serum-albumin by dissolving upon the application of heat. It produced a slight cloudiness in three out of

[1] Laache: Harnanalyze, 1885, p. 65.
[2] Zeitschrift f. Anal. Chem., 1871, 11, 30.
[3] Lancet, 1882, 2, 823.
[4] Pharm. Zeitschr. f. Russl., 13, 683
[5] Lancet, 1882, 737; 1886. Brit. Med. Journ., Oct. 1884.
[6] Pharm. Journ. and Trans., 17, 855.
[7] Zeitschr. f. physiol. Chemie, 10.

eighteen specimens under examination and in delicacy was found to equal No. 2, the nitric acid contact test.

7. *Picric acid* (Hager's modification[1]).—This is applied by adding five drops of pure hydrochloric acid to two and a half drachms of the urine, and then a layer of about one-half its volume of a cold saturated picric acid solution. If even a trace of albumin is present, a cloud will appear at the place of contact. In sixteen specimens it was found to yield precipitates which consisted chiefly of the characteristic groups of needles of creatinin picrate. This modification cannot be said to possess any advantage over picric acid alone.

8. *Acetic acid and potassium ferrocyanide* (Bödeker's reaction).—This test is regarded by Hilger[2] as one of the most delicate, if not most conclusive, of albumin tests, and in this examination it showed a reliableness thoroughly in accordance with its previous reputation. It certainly deserves a prominent position along with the heat and nitric acid test and is equally delicate. It gave only a very slight cloudiness in one instance. To apply the test the urine is acidulated with acetic acid, and then a few drops of potassium ferrocyanide added. Hemialbumose likewise yields a precipitate, but peptones do not.

9. *Trichloracetic acid.*—Raabe[3] has highly recommended the use of this compound as a reagent for albumin in urine. A crystal of the acid is added to about sixteen minims of the clear filtered urine, and as it dissolves it yields a clouded zone if albumin is present. Normal urine is said to give a similar reaction in the presence of urates. Nine specimens of urine out of the eighteen under examination gave distinct clouds. In delicacy it is equal to No. 4.

10. *Haslam's ferric chloride test.*[4]—The urine is acidulated with acetic acid, a few drops of sodium chloride added and then a layer of ferric chloride. If albumin is present a white cloud is said to form at the zone of contact. Precipitates were obtained by this test with all of the urines. It is not a delicate reagent even for pure albumin solutions.

11. *Méhu's reagent.*[5]—This consists of one part phenol, one part acetic acid and two parts water or alcohol. It has been examined by Simon,[6] and is considered by him as the most delicate and trustworthy reagent for albumin. In my examination it proved itself to be as reliable as Haslam's test, inasmuch as it also gave precipitates with the entire eighteen urines. In delicacy it is equal to Roberts's brine test.

12. *Mercuric chloride.*—A five per cent. solution was employed, and when applied to pure solutions of albumin it was very delicate, probably more so than the heat and nitric acid test: but in testing urine it is worthless, inasmuch as it gave precipitates with the entire eighteen samples.

13. *Potassium mercuric iodide.*—The use of this alkaloidal reagent as a test for albumin has been recommended by Tanret,[1] not only for qualitative but also for quantitative purposes. It produced cloudiness in sixteen out of eighteen urines under examination. Otherwise it is as delicate as No. 12.

14. *Potassium xanthate.*[2]—This gave precipitates with only four urines, but is not a delicate reagent.

15. *Tannic acid.*—Like the solution of mercuric chloride, it is inapplicable in testing for albumin in the urine. It gave precipitates with the entire eighteen specimens.

16. *Sodium tungstate.*—This is also one of the most sensitive reagents for albumin when in pure solution, but is worthless when examining urine. It gave clouds in seventeen cases.

From what has been said in regard to these different tests, it will be seen that the number of those which are really applicable for testing for albumin in the urine is very small and, indeed, can be restricted to only four. These in respect to their delicacy and applicability can be arranged in the following order.

1. Warming with subsequent use of nitric acid, not acetic acid. This test, if properly used, will give as distinct reaction for minute traces as the most delicate alkaloidal reagent.

2. *The nitric acid and contact method.* This test is almost as delicate as the preceding and is free from any source of error.

3. Acetic acid and potassium ferrocyanide. This is a very sensitive reagent, and does not produce, in normal urine, any precipitate, or at most, in isolated cases, a slight cloudiness.

4. *Picric acid.* This reagent cannot be said to be as delicate as either of the three preceding, and, moreover, the number of normal urines with which it gives reactions is quite considerable.

[1] Pharm. Centralhalle, 20, 337.
[2] Archiv. d. Pharm., 206, 383.
[3] Pharm. Zeitschr. f. Russl., 20, 445.
[4] Chem. News, 47, 239.
[5] Journ. de Pharm. et de Chim., 9, 95, 1869.
[6] Journ. de Méd. de Paris, 1887, 31.

CASE OF A MINIE-BALL EXTRACTED FROM THE PELVIS TWENTY-THREE YEARS AFTER THE WOUND.

Healing of the Fistulous Fecal Track Afterward by Injections of Dilute Carbolic Acid and Iodine.

BY T. L. OGIER, M.D.,
OF CHARLESTON, S. C.

Je le pansai et Dieu le guerit was the axiom of the celebrated Ambrose Paré on the recovery of some of his most serious and hopeless cases of surgery. And where is the experienced surgeon who has not

[1] Centralbl. f. d. med. Wissensch., 1877, 493.
[2] Zeitschr. f. Anal. Chem., 21, 579.

felt the force of this truth: how often have we seen it in cases of abortion or premature delivery, when the placenta or parts of the fœtus were retained in spite of all our efforts to extract them until the decomposition of the fetor was so great as to make us dread septicæmia and fatal results; yet to find our patient recover without our sad apprehensions being realized, and the reverse in another, and under similar circumstances, when extraction has been easily and thoroughly done, and all antiseptic precautions have been strictly observed to find our patient feverish, the skin pale, temperature high, finally delirium and death from blood poisoning.

This sometimes occurs in other cases notwithstanding the great improvements of antiseptic surgery which now enable us to perform, successfully, operations which before were considered impossible. The great advantage of this system in all cases of surgery and gynecology is so evident that nearly all surgeons now give their patients the benefit of it, but yet patients will die when we do not expect them to, and get well when it seems as if they must die.

The following case verifying the axiom, "*Je le pansai et Dieu le guerit*," I think worth reporting for the following reasons: first, that the patient did not die from the immediate effect of his wound; second, that the ball with bone imbedded in it should have remained in the body for twenty-two years with a sac or cellular tissue forming around it; but, instead, travelling in several directions, coming to a place where it could be diagnosed and extracted successfully, and, finally, the complete obliteration of the fistulous tract by compound iodine injections; healing of the external wound, and the restoration of the patient to health.

CASE.—In one of the last battles of the late war, just before the surrender (at Appomattox Bridge), Capt. L. I. W. received a wound on the left side, three inches below the middle of the crest of the ileum, the ball crushing through the bone at this point was lost in the pelvis. Urine is said to have flowed through the external wound and bloody urine was passed, naturally, for some days after.

Capt. W. remained in hospital about six weeks, during which time his improvement continued; finally, the external wound healed, and his urine became clear, and he left for his home in Charleston.

After he arrived here he suffered little from the wound and attended to his business as rice and cotton factor, but a year later he complained of some trouble in his bowels, the feces came apparently to a certain point in the bowel, but would come no further. I prescribed warm salt and water injections which relieved him; some months after this he complained of the same trouble, and upon introducing my finger into the rectum, high up, I discovered a hard lump on the back and left side of the rectum and pressing on it. By the use of the warm salt and water injections, night and morning, this disappeared, and there was no further trouble for about three years; when, upon pressing with his hand on the lower part of the buttock, he felt and heard a gurgling sound as though there was air in a fluid in the part. Upon examination I found that such was the case, there was no swelling or enlargement of the part, but upon pressing on the buttock just below and within the tuberosity of the ischium a distinct gurgling could be felt and heard: how to account for it I could not, but that there was a sac containing the ball or some foreign substance I had no doubt: how the gas or air got into it I could not see, for if it came from the bowel fecal matter would enter the sac, a fecal abscess would be formed and open either into the rectum or point externally. Nothing of this kind occurred, the patient felt no pain or inconvenience and went about and attended to his ordinary duties, the bowels were regular and the appetite good, still the gurgling could be made evident by pressure.

In about six weeks this ceased to trouble him and it disappeared, and I saw him no more until May 8th, last, when he sent for me in consequence of feeling a hard lump when he pressed hard on the inner side of the tuberosity of the ischium.

On examination just about one and a half inches external to the right end of the usual incision in the perineum, made when operating for calculus, a hard lump could be felt. It was evidently the ball or a piece of bone knocked off by it, so placing the patient over the back of a chair with his hands resting on the seat of it, an incision about three and a half inches long was made in the skin, deepened gradually until the knife touched the foreign substance. This was then laid bare so as to admit of its being seized and I introduced the forceps and extracted it.

It proved to be a minie-ball split from the point nearly to its base by a piece of bone which it grasped firmly.

There was very little hemorrhage, and about two or three ounces of a bloody fluid escaped; the depth of the wound from the skin to the ball was three inches, in length three and a half inches.

After all oozing had ceased the wound was washed with a solution of chloride of zinc, a small tent introduced into the inferior end of the incision to act as a drainage, the lips drawn together and kept in place by rubber plaster, a layer of carbolated cotton was laid over this and secured by a bandage around the pelvis; fluid continued to flow from the lower end of the wound along the drainage-tent, the patient feeling no inconvenience.

On the fourth day the dressings were removed, the lips of the wound united down to the situation of the tent. A seidlitz powder was now given as the

bowels had not been moved since the operation; this acted freely and comfortably and everything went on satisfactorily and naturally, the patient having an operation from the bowels every twenty-four hours, until the ninth day, when our patient had a chill, became feverish and lost his appetite. Three grains of quinine were given three times a day; chicken-broth and beef-tea only for nourishment.

No second chill followed, and on the eleventh day pulse became natural, but on the twelfth day distinct fecal matter was mixed with the fluid discharged from the wound, and upon giving an enema, the water of the injection came through the wound as well as through the anus when the patient made an effort of defecation. The rectum was now well washed out with warm water and explored by the finger with a probe in the external wound without success, but upon pushing the finger very high up near the upper part of the sacrum, a slight depression could be felt, and by bending a long probe and introducing it from the wound, it entered through this depression into the rectum, and felt there by the finger, thus showing a complete fistula.

The opening in the gut was six inches from the anus and ten inches from the wound made for the extraction of the ball.

With the internal orifice of the fistula so high up in the rectum, and the external opening four inches from the anus and ten inches from rectal opening it was a serious consideration as to the proper means to be used for its care. To have operated by laying the rectum open from the internal to the external opening I do not think would have succeeded, and certainly could not be thought of in the present condition of the patient's health; for, since his chill of the ninth day, after the operation his appetite never fully returned, and he lost flesh and was pale and feeble, so we determined to build up his strength by quinine, tonics and nourishing foods; keep him in bed entirely, wash out the wound and keep it clean, inject the canal with a solution of iodine and carbolic acid, and insert a tent dipped in a solution of iodine and carbolic acid, double the strength of the injection up the opening in the rectum, this tent to remain in until the following day; if it was expelled, another was to be inserted immediately after cleansing the canal.

The treatment was kept up for several weeks, the canal becoming narrower, and only slight traces of fecal matter in the discharges from the wound. The iodine solution was now made a little stronger and used for a week, but not thrown up with much force; by the fourth week no fecal matter was perceived, and the fluid discharge from the fistulous track was so slight that the compound iodine injections were stopped entirely and the tent introduced for only one-half inch, for three more days, then the lips of the wound allowed to heal entirely; the patient feeling perfectly well and having operations from his bowels without any inconvenience.

In the seventh week from the time of the extraction of the ball he left the city for the mountains, where he regained all his lost strength and returned in five weeks more a well man.

Many cases of fistula in ano have been treated by injections, but as far as I know of, had to be operated on for their final cure.

The operation of laying the fistulous track open from the upper to the lower orifice, keeping the surfaces from contact until the space fills up, is considered the cure for fistula in ano. In this case the direct cause of postponing any operation was the patient's feeble condition, not wishing to cause additional irritation to his system, and even with his system in good condition it is very doubtful if the wound in the rectum so high up would have closed or the extensive fistulous track ever have healed. That my patient should, under the above treatment, have recovered was most gratifying and unexpected. "*Je le pansai Dieu le guerit.*"

In a similar case I should try the same treatment and hope for the same result.

MEDICAL PROGRESS.

The Treatment of Chronic Constipation.—According to the experience of Bueler, of Berne (*Corr. Bl. für Schweiz. Ärzte*, 1888), the most effective remedy in the treatment of chronic constipation is massage of the abdominal walls. This does not imply a mechanical, indiscriminate following of the movements directed by various authors, but the massage is to be differently conducted with regard to the varying causes of the constipation and the individuality of the case. If the trouble is essentially due to deficiency of the abdominal tension, with relative integrity of the muscular layer of the intestine, deep, powerful massage is indicated at the beginning, to arouse reflex contractions of the recti abdominis. If, however, there is atony of the intestinal muscular layer, as in the case of those of sedentary occupation and little muscular exercise, the muscles of the abdominal wall should be irritated as little as possible, but made tolerant of the massage by gentle stroking of the surface with the flattened hand. It is only later that the abdominal walls of such patients may be energetically manipulated. If dyspepsia be the cause of the constipation, massage of the epigastric region will be of good service in propelling the food onward. In several cases of the kind, in which the ingesta ordinarily remained in the stomach for more than two hours, by methodical massage of the epigastric region the food was forced into the duodenum within five or ten minutes, as demonstrated partly by washing out the stomach and partly by the salol test of the urine. In constipation in consequence of neurasthenia, irritation of the skin and ice-bags to the abdominal walls are indicated. Also in constipation resulting from chronic peritonitis and perityphlitis has massage been effective. In all, the author has thus treated twenty cases of chronic constipation, eighteen with permanent success. In one case a relapse occurred.

One case resisted treatment and was discharged as incurable. As a rule, a cure was effected within four to six weeks in eighteen to twenty-five sittings. In explanation of the efficacy of the method, the following are to be considered: 1. The mechanical effect, the stimulating secretion of the intestinal glands, and propelling onward the intestinal contents. 2. The reflex effect, particularly in nervous individuals, at times the muscular layer being more or less intact. 3. The rise in the temperature of the blood of the organs manipulated, at times reaching 1.8° to 5.4° F. 4. Perhaps a chemical action, induced by the accumulation of CO_2 in the veins of the intestinal tract in consequence of the venous hyperæmia of the peritoneum caused by the manipulation. At the same time the peristalsis is increased.—*München. Monatsh.*, August, 1888.

Treatment of Aneurisms.—M. Germain-Sée highly extols the simultaneous use of iodide of potassium and antipyrine. He finds that the latter drug effectually quiets the tumultuous cardiac action, favors the formation of the clot and dissipates, to a remarkable degree, the dyspnœa and terrible pains.

Dujardin-Beaumetz, while recognizing the high value of antipyrine, finds that its continuous use brings out an eruption, and for that reason he prefers phenacetine, which is never toxic and as efficient as antipyrine. —*L'Abeille Médicale*, August 20, 1888.

Treatment of Ununited Fractures.—In the *Reforma Medica* of August 14th a case is related, in which Professor Loreta successfully treated an ununited intracapsular fracture of the neck of the femur, by scraping the fractured surfaces and inserting a bundle of metallic sutures between them. On January 23d, a robust man, aged thirty-six, was admitted into the Bologna clinic with the history of a fall on the left hip nineteen months previously, since which he had been quite unable to stand, and had suffered from constant severe pain, shooting from the left hip-joint into the gluteal region, the point of greatest intensity being over the course of the sciatic nerve. The limb was much wasted, but it was normal in position, and scarcely at all shortened. Flexion and extension of the thigh on the pelvis were almost impossible, but the patient could occasionally execute very slight movements of rotation and abduction. In rotation, he was sometimes conscious of faint crepitus in the trochanteric region. On February 15th, Prof. Loreta operated with full antiseptic precautions. He made a long incision behind the great trochanter, so as to expose the capsule of the joint, when he noticed a depression between the intracapsular and extracapsular portions of the neck of the femur. On moving the limb, it was found that there was a fracture without displacement in that situation. The capsule was then opened, the fibrous tissue between the fragments divided, and the fractured ends carefully freshened by scraping with a raspatory. As it would have been very difficult to wire the fragments, a bundle of from eight to twelve metallic sutures was introduced between them, and brought out at the lower angle of the external wound. The wound was carefully cleansed, a drainage tube inserted, the edges brought together with deep and superficial interrupted sutures and the whole covered with a sublimate dressing. A long outside splint was then applied. Five days after the operation, the bundle of metallic sutures was removed, and the wound healed by first intention. In less than a month the pain had permanently ceased, and fifty-five days after the operation the patient left the hospital, being able, not only to stand, but to walk with no further support than an attendant's hand.—*British Medical Journal*, August 25, 1888.

Creolin as a Mouth Wash and Gargle.—Schnitzler recommends (*Internat. klin. Rundschau*, No. 27) creolin in obstinate forms of angina follicularis, to be brushed or powdered. The taste is unpleasant.

R.—Creolin . . . 1 or 2 parts.—M.
Aquæ destil. vel.
aquæ menth. pip. . 100 to 500 parts.
S.—As gargle.

R.—Creolin . . . 1 to 5 parts.
Aquæ dest. . . . 50 to 100 parts.—M.
S.—Apply with a brush.

R.—Creolin . . . 1 to 5 parts.
Acid. boric. . . 10 parts.
Ol. menth. pip. . . q. s.
—*Deutsch. medicin. Wochenschr.*, August 16.

Septic Onychia.—This disease, which never gets well by itself and resists even heroic surgical treatment, can be entirely cured, according to Frottier, by antiseptic treatment. He washes the sore with a twenty per cent. solution of phenic acid and covers with iodoform. If the nail is acting as a foreign body, it is carefully removed before the application of the dressing, which is removed every four days, and a fresh one substituted. About three months is required for the perfect reproduction of the nail.—*L'Abeille Médicale*, August 13, 1888.

Salicylic Acid in Metrorrhagia.—Dr. Felici has found salicylic acid arrest the flow in two cases of metrorrhagia in a wonderfully short time, and thinks it should be tried extensively by other medical men in similar cases. His first case was one of carcinoma in which the hemorrhage had been constant and profuse, and had defied all ordinary styptic remedies; a plug of carbolized cotton wool, soaked in a solution of salicylic acid, was applied to the uterus, and completely arrested the hemorrhage within a few minutes. The second case was one of simple metrorrhagia during the menopause, but of so violent a character that the patient became collapsed. Ordinary remedies were tried, with merely temporary effect. Finally, Dr. Felici introduced into the uterus a dossil of cotton wool soaked in a concentrated solution of salicylic acid on the end of the uterine sound. This arrested the hemorrhage in a few seconds and no return occurred.—*Lancet*, August 18, 1888.

The Treatment of Syphilis by Injections of the Yellow Oxide of Mercury in Comparison with Calomel Oil.—Kühn, of Cottbus, states (*Deutsch. medizin. Wochenschr.*, August 2,) that it is generally conceded that injections of calomel are highly useful in the treatment of syphilis. The formation of abscesses is entirely obviated by suspension of the remedy in oil. To determine the relative value of this method of treatment, for almost a year he has largely used injections of the yellow oxide of mercury. Four hundred and twenty-five injections were made in seventy

persons. There were almost exclusively present the affections of the skin and mucous membranes of secondary syphilis. The eruption was always waited for. Topical treatment was avoided. The author has found the results good, but the action not so efficient as after calomel. It appears that four to six injections of calomel have the same effect as six to ten of the yellow oxide. While six, in individual instances, twelve, injections of calomel suffice, twelve to twenty of the yellow oxide are necessary. The following suspensions were used: 1. Calomel vapor parat. gr. xv, olei oliv. optim., ℥ss; 2. Hydrar. oxidg. flav, gr. xv, olei oliv. optim., ℥j. Though it must be conceded that injections of calomel oil are less efficient than those of calomel, on the other hand the reaction following the former are slighter. Abscesses do not form; nor is there notable induration. Stomatitis, which occurred in six cases, was readily checked, so that withdrawal of the treatment was unnecessary. It is believed that with care, barring any special susceptibility to mercury, stomatitis can be entirely avoided. Induration was infrequent. When it occurred, it developed on the day succeeding the injection, disappearing in three to five days. At the time of injecting there was a little pain as in the case of calomel. Comparing the 425 injections of yellow oxide with 272 of calomel as regards reaction, the result is in favor of the former. A number of patients were given injections of yellow oxide and calomel in succession, without recognizing any difference in the fluids used. They volunteered the information, however, that the pain following the calomel injection was the more intense; the induration was more extended, persisting from eight to twelve days, while in the case of the yellow oxide it disappeared in three to five days. The author, in his experiments, used the simplest means, as made necessary during the office hours of a busy practitioner. The strictest antisepsis was observed and the injections were made deeply into the muscles. The patients could not obtain rest of a few hours after the injections, as, on account of the nature of the disease, they desired to avoid conspicuity and any interruption in the pursuit of their avocations. The injections of both preparations were made under precisely similar conditions, so that the comparison ought to furnish accurate results. In conclusion, the author adds that injections of yellow oxide of mercury are certainly very effective, though inferior to inunctions and calomel injections. They commend themselves for their convenience of application, causing locally or constitutionally no complications. They are, therefore, especially adapted to the treatment of walking cases, and are to be preferred as being more convenient, cheaper, more easily managed and less likely to attract attention to the patients. The author usually begins the treatment with the yellow oxide and, if the symptoms speedily disappear, so continues it. The oxide seems specially adapted for slight relapses, in the after-treatment and prophylaxis, viz., to prevent fresh eruptions. Calomel oil was used when the symptoms yielded too slowly to the initial treatment with the yellow oxide and in severe relapses. It is recommended that calomel injections be not entirely excluded from the early treatment, because with fewer injections the less frequent visits of the patient constitute no slight advantage. The injections are suited to the strong and insusceptible. On the other hand, mild relapses in those who bear the injections well might be treated with calomel.

The Antiseptic Influence of Iodoform, the Ethereal Oils and other Substances. The Compression of Gaseous Antiseptics into Gelatin.—As the result of a series of experiments, Ridelix (*Archiv. f. Hygiene*, Bd. 7, S. 309) arrives at the following conclusions:

1. Iodoform acts either as an almost indifferent powder or as a weak antiseptic against the various rod-shaped bacteria. Against cholera vibriones, however, it is a powerful antiseptic, its vapor inhibiting their growth, in ten per cent. solutions of gelatin to the depth of one-fifth to two-fifths of an inch.

2. Oil of turpentine, in one per cent. emulsion, actively inhibits bacterial vegetation. Gelatin cultures, to which is added turpentine 1 : 200, are not adapted to the development of rod-shaped bacteria. On the other hand, a one per cent. emulsion of turpentine does not suffice to destroy the spores of splenic fever. Turpentine itself is actively antiseptic, in a ten per cent gelatin solution finding its way to a depth of three-fifths of an inch, preventing any development in this area.

3. Among the other oils which are antiseptic are those of lavender, eucalyptus and rosemary, but they do not make up into active emulsion. They are themselves distinctly antiseptic. The first two invade a ten per cent. gelatin solution to a depth of two-fifths of an inch, the last to a depth of three-fifths of an inch, and inhibit vegetation to these extents respectively.

4. Of the remaining ethereal oils, oil of olives possesses the strongest antiseptic power. All others, as the oils of thyme, fennel, peppermint, anise and juniper, and camphor are of minor importance as antiseptics.

5. Iodol has proven to be an inefficient, indifferent powder against bacteria.

6. Balsam of Peru is a pretty active antiseptic, acting with peculiar energy upon the cholera vibrio. Placed upon a ten per cent. solution of gelatin, it invades to the depth of three-tenths of an inch and inhibits vegetation.

7. Sodium sulpho-ichthyolate in a five per cent. watery solution has but a weak antiseptic influence.

8. Anilin and saturated anilin water possess conspicuous antiseptic properties. A ten per cent solution of gelatin, to which one-fifth of anilin water has been added is unfit to support bacteria.

9. The experiments upon the compression of gaseous antiseptics into gelatin have shown that gelatin is no inert substance, but that peculiar and extensive diffusive processes take place in it.—*Centralbl. f. die ges. Therap.*, August, 1888.

Nitroglycerin in Migraine and Cephalalgia.—Troussiévitch (*Bulletin Médical*, No. 35) has had favorable results from the use of nitroglycerin in sea-sickness, and particularly in that form of migraine dependent upon contraction of the vessels, especially in those cases in which the pains occur in paroxysms, are increased by compression of the carotids, are diminished by recumbency, and in which, during the seizure, the face is pale. Nitroglycerin is contraindicated in cephalalgia, the result of passive cerebral hyperæmia. The best mode of administration is by dropping a one per cent. solution upon the tongue. Beginning with one drop, to test the susceptibility of the patient, a drop may be added every third day, as necessity demands.—*Deutsch. medicin. Wochenschr.*, July 26, 1888.

Incision of Swollen Optic Nerve Sheath.—MR. BRUDENELL CARTER, at the recent Glasgow meeting of the British Medical Association, gave an account of a method which he had devised of opening the sheath of the optic nerve behind the eye, for the relief of pressure within this sheath and within the cavity of the skull.

The brain is invested by firm membranes, which secrete a certain amount of fluid, and are continued down to the eye in the form of a sheath, which surrounds the optic nerve; and, whenever the pressure within the cavity of the skull is increased, as by the growth of a brain tumor, or even by excess of secretion from the membranes themselves, a superabundance of fluid is apt to find its way down the nerve sheath to the level of the eye, to subject the optic nerve to injurious pressure, and, in many cases, to destroy the sight. It not infrequently happens that the pressure within the brain cavity may be increased by temporary or curable causes, which, nevertheless, continue in action sufficiently long to produce permanent blindness, even although the patient may, in other respects, recover.

In view of these conditions, it was suggested by Dr. de Wecker, of Paris, sixteen or seventeen years ago, that it might be possible to open the optic nerve sheath, and thus not only to relieve the nerve from pressure, and to preserve it from injury, but also, on account of the position of the eye relatively to the brain cavity, to drain the latter by gravitation, and to relieve the brain as well as the eye. Dr. de Wecker made two endeavors to accomplish this object, but he tried to feel his way to the optic nerve without the aid of sight, and to incise the sheath by means of an instrument carrying a concealed knife, capable of being projected by means of a spring. The risks of failure, and, still more, the risks of inflicting irreparable injury upon the nerve, were such that he only attempted his operation in two well-nigh hopeless cases, and only one attempt to follow his example has been recorded.

Mr. Carter's attention was called to the matter last year by a case in which the diminution of pressure within the optic nerve sheath was manifestly desirable; and he devised a method of operating by which the sheath could be exposed to view, and the object attained with certainty, under the guidance of sight at every step of the process. He read before the Medical Society of London, last year, an account of the first case in which he operated, which was successful. The external rectus was divided, the eyeball then rotated inward, the sheath of the optic nerve was exposed and opened, and gave exit to the contained fluid. He read an account of three more cases at Glasgow, in one of which the result was negative, as far as sight was concerned; while in the other two the patients were not only quickly restored to useful vision, in one instance from complete, in the other from nearly complete blindness, but were at the same time relieved or cured of other symptoms, such as headache and sickness arising from direct pressure on the brain.

In his paper at Glasgow, Mr. Carter claimed for the new operation that it could be performed with certainty and without risk either to life or to any important structure, and that it afforded a reasonable prospect of the preservation of sight in many forms of disease in which it is now habitually or frequently lost. As in the case of every new operation, time and further experience of its effects are required in order to determine the precise limits of its usefulness. In the discussion which followed the paper, Mr. Bickerton, of Liverpool, said that, in consequence of reading the account of Mr. Carter's first case, he had himself performed the operation in two instances, in one of which temporary restoration of sight was followed by relapse, while in the second the ultimate issue was favorable.

Wound of Left Ventricle.—KIANKOFF relates the case of a Cossack who was wounded in his left side at the fourth intercostal space, the blade entering the heart. The wound was cleansed and dressed with a compress. The patient regained consciousness the next day and lived for four weeks. He finally died from attempting to lift a heavy load. The autopsy disclosed a wound in the left ventricle. The pericardium was full of dark bloody matter.—*L'Union Médicale*, August 4, 1888.

New Vesicant.—DR. BONI, in *Union Pharmac.*, recommends the following:

Camphor	2 parts.
Chloral	30 "
Cantharides	10 "

The camphor and chloral are first mixed in a mortar and then warmed. The tincture of cantharides is added last and then thoroughly shaken for fifteen minutes. This preparation is less volatile than the cantharidal collodion, and is especially useful in cases of women and children.—*Journal de Médecine de Paris*, Aug. 12, 1888.

Angina Pectoris.—HECHORD highly recommends the subcutaneous injection of nitro-glycerin; he uses forty drops of a one per cent. solution in alcohol in half an ounce of water, and regulates the dose in accordance with the requirements.

This method, while not curative, greatly ameliorates the suffering and diminishes the frequency of attacks, if perseveringly followed.—*Revue de Thérapeutique.*

A Case of Sudden Blindness.—NOTHNAGEL (*Wiener med. Blätter*, No. 20, 1888) relates the case of a man, forty-six years of age, who, always in good health, barring occasional headache, suddenly became blind, with fully retained consciousness. The somewhat demented patient showed entirely healthy internal organs; the ophthalmoscopic examination was negative, the pupils of varying size, the right somewhat slower to react than the left. A test of the visual field disclosed hemiablepsia superior, though the inferior range of the field was not unimpaired, for only the colors red and white were distinguished and there was no appreciation of the size of objects. The author believes that there was a lesion of the visual field in the cerebral cortex in the occipital lobe. He had already observed simultaneous disease of both occipital lobes, confirmed at the autopsy. The reflex irritability of the pupils excluded a lesion of the optic thalamus or of the corpora quadrigemina.—*Medicin. Chirurg. Rundschau*, August 1, 1888.

Methylal as an Hypnotic.—M. BOURBILA has been experimenting with this drug and, in certain nervous affections, prefers it to chloral, urethan or opiates.

In epilepsy and mental disturbance due to organic lesions, it has proved of value.

Its solubility, harmlessness and pleasant taste and odor unite in making it a superior hypnotic.—*Gazette Hebdomadaire des Sci. Méd.*, August 18, 1888.

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PHILADELPHIA.

SATURDAY, SEPTEMBER 15, 1888.

THE SURGICAL TREATMENT OF INTUSSUSCEPTION.

THE discussion upon the treatment of intestinal obstruction at the coming meeting in Washington of the Congress of American Physicians and Surgeons, will doubtless prove to be the auspicious event of the year, in the line of abdominal surgery. And we may certainly expect that it will put many of the at present mooted questions of diagnosis and surgical interference at rest or at least upon a much more substantial and practical basis.

MR. ARTHUR E. J. BARKER has recently successfully and brilliantly operated upon a case of intussusception of the cæcum, ascending and transverse colon, which he reports in the *Lancet* of August 11th, together with some very interesting statistics of operative interference in such cases. His case was of unusual interest. A child, four years old, who had always had the very best of health, came under Mr. Barker's care, with indubitable symptoms of intussusception. He had copious bloody stools, accompanied with great straining and tenesmus, severe abdominal pain and peritonitis decubitus. A well-marked tumor could be made out in the left iliac fossa, but could not be defined by rectal examination. An ineffectual effort to reduce the invagination having failed, abdominal section was proceeded with seventeen hours after the onset of the symptoms. As soon as the median incision had been made, a hand was carried into the abdomen and the tumor, not without considerable difficulty, was reduced by adopting a method of reduction recommended from a theoretical standpoint, some years ago, by Hutchinson. This consists in pushing the tumor upward from below and at the same time retracting the ensheathing bowel with one hand, while with the other gentle traction is made upon that portion of the intestine which enters its upper portion. In this case the reduction was mainly accomplished without bringing the mass into view. The involved bowel was œdematous and in places ecchymotic, but otherwise in good condition. The operation was completed in thirty-five minutes; no drainage was used, and the patient made a rapid and uninterrupted recovery.

Barker's statistics embrace preantiseptic as well as thoroughly antiseptically treated cases, and, consequently, whilst they present a somewhat grim appearance as regards success when contrasted with those of other departments of abdominal surgery, still, when we take into account all of the heretofore usual concomitants of this most desperate class of cases, we must be rather more surprised at the recovery record than at the mortality rate. He has been able to collect 63 cases of intussusception of all varieties which were treated by abdominal section—in most of them probably undertaken as a very last resort. Of this total, 38 were children, with a mortality of 87 per cent., and 25 were adults, with a death-rate of 68 per cent.

In all, 13 recovered and 50 died—a mortality of 74 per cent. Section was performed in 34 cases and the bowel released (including Barker's own case), with a mortality of 65 per cent. In 29 cases the intussusception was found irreducible. Of these 29 operations 5 must be classed as exploratory, as no treatment of the invagination was attempted; in 14 the affected bowel was resected, and in the remaining 10 artificial ani were formed. But a single one of these 29 cases recovered—that of an adult whose intussusception was resected.

We think that these figures alone more than justify the author's modest conclusion that a larger array would probably strengthen his belief that abdominal section "compares favorably with other methods of treating this very fatal condition."

Indeed, such a method of treatment should be practically always successful if we could make our diagnosis and operate during an early stage of the disease, before the patient had lost almost all chances which might have been in his favor, through exhaustion and septic absorption.

A METHOD OF WIRING FRACTURES OF THE PATELLA.

THE treatment of transverse fractures of the patella is confessedly unsatisfactory, and the ideal method which will yield a perfect result and expose the patient to no danger has yet to be discovered. Very many different methods of treatment and various forms of apparatus have been devised for the reparation of this injury. Most surgeons are content to use splints in uncomplicated acute cases and are measurably satisfied with their results. A few use Malgaigne's hooks, hoping thereby to gain a closer union of the fragments, and claim good functional results. Others who worship at the shrine of Listerism, boldly advocate and practise incision into the joint, removal of interposed fibrous tissue, clots, and effusion and the immediate approximation of the fragments with wire. By all of these methods good functional results have been obtained, and under all have there been many failures. When splints alone are used union occurs through the interposition of fibrous tissue, which if not more than half an inch in length is probably as useful as if the continuity of the bone had been entirely restored. Even when the separation is much greater, there is usually but slight disability; and the crowning virtue of the treatment is its perfect safety.

On the other hand, the advocates of incision and wiring do usually obtain bony union, good functional results and a marked shortening of the time of treatment; but it cannot be said that the method is free from danger, either to life or limb. In some cases inflammation, suppuration and necrosis supervene, in some amputation of the thigh becomes necessary, in a percentage, by no means small, death has resulted; and in some which have safely passed these stages, there are stiffness and partial ankylosis of the joint. In view of these casualities many surgeons who are thoroughly imbued with the principles of aseptic surgery, and versed in its technique, have rejected the open incision and immediate suture, and make use of apparatus of various kinds.

As a contribution toward the solution of the best method of treating fractures of the patella, DR. W. L. AXFORD, of Chicago, has devised "A method of wiring fractures of the patella," which is published in the *Annals of Surgery* for July.

In order to limit effusion and abort inflammation, the limb immediately upon the occurrence of fracture should be placed on a posterior splint, and soft sheeps'-wool sponges applied over and to the side of the joint and snugly held in place by a roller bandage. Ice water should be kept constantly trickling upon the sponges for forty-eight hours, at the end of which time the knee will probably be ready for the operation. If the effusion is still too great, it may be removed by Schede's method, and if the fragments cannot be brought together, the ligamentum patellæ may be detached from the tibia. The fibrous aponeuroses should be removed by rubbing the surfaces together or by passing a tenotome between the fragments and separating the interposed tissues. For the purpose of wiring the fragments, a long Brainard's drill is used, the point of which is perforated to allow the wire to be passed. Two drills are necessary. The fragments being held together, one drill is entered from above and passed through the fragments in a direction parallel to the long axis of the limb. The drill is detached from the handle and left temporarily *in situ;* the other drill is passed in the opposite direction from the first, the wire threaded into the eye at its point, and the drill withdrawn bringing the wire with it. The first drill is threaded in the same way and withdrawn, and the wires are twisted. A few layers of gauze are placed over the knee, the twisted ends of the wires pushed through the gauze, and a cap of hard rubber, leather or felt perforated is applied over all. The wires are now twisted tightly and a Bavarian or plastic splint applied.

Dr. Axford thinks this method presents a minimum danger of infection when stringent antisepsis is enforced, and that there is a good chance to obtain bony union. This method, in part of its execution, is very like that advocated by Dr. T. G. Morton, of Philadelphia, a few years ago, and we do not see that it presents any particular advantages over Morton's procedure. Dr. Morton passed his pins as in the above method, and, placing shoulders over their extremities, allowed them to remain. They would certainly approximate the fragments as well as the wires. We think either method preferable to the open section. No operation of this nature should be performed except with the observance of all necessary antiseptic precautions.

THE POISONOUS EFFECTS OF CIGARETTE-SMOKING.

THE experimental investigation by Dr. Dudley of the cause of the poisonous effects of cigarette-smoking, presented on another page of THE MEDICAL NEWS, has led him to ascribe it mainly to carbonic

oxide produced by the process of combustion. The difference in the effects of smoking a cigarette and a pipe or cigar he holds to be due entirely to a difference in the methods of smoking. By the inhalation of the smoke the carbonic oxide is brought in position for absorption in the lungs and acts injuriously upon the blood by deoxidizing it. Were the smoke of a cigar or pipe inhaled in the same manner as that in cigarette-smoking it would be just as injurious. The experiments made upon mice, which were placed in a confined atmosphere thoroughly impregnated with cigarette-smoke, showed that the carbonic oxide quickly destroyed life, proving it to be a most noxious constituent of tobacco-smoke.

Dr. Dudley rejects the explanation that the poisonous action of cigarette-smoking is due to the adulteration of the tobacco with drugs, such as opium, or to arsenic contained in the paper. Nicotianine is poisonous, but it is not peculiar to the cigarette. The deleterious effects of the cigarette-habit are, therefore, not due to anything peculiar in the composition of the cigarette, but to the practice of inhaling the smoke. It follows, therefore, that tobacco-smoking is injurious in proportion as the smoke is inhaled. That the most poisonous constituent of tobacco-smoke is carbonic oxide seems indicated by Dr. Dudley's investigation, but further experimentation may demonstrate a different conclusion.

The first triennial Congress of American Physicians and Surgeons assembles in Washington next week, and the indications point to a most successful meeting.

The initial number of a new weekly medical journal, to be called *The Illustrated Medical News*, is announced to be published in London on September 29th. Its distinctive features will be an original colored plate with each number, and numerous woodcuts in illustration of the text.

The Canadian Medical Association met in annual convention, at Ottawa, during the past week. Among those who were on the programme to present papers were Drs. Howard, Fenwick, Roddick, Alloway, Shepherd, Stirling, Mills, Blackader, Laphthorn Smith, James Bell, Canniff and Playter; also, Dr. Osler, of this city, whose subject was the "Mortality of Pneumonia." The *Montreal Medical Journal* laments greatly that the French-Canadian fraternity has hitherto held aloof from this representative medical body of the Dominion, and earnestly urges that element to put its shoulder to the medical wheel at the Ottawa meeting, to the advantage of every element.

REVIEWS.

Laryngology and Rhinoscopy in the Diagnosis and Treatment of Diseases of the Throat and Nose. By Prosser James, M.D. Fifth edition enlarged; illustrated with hand-colored plates. 12mo. pp. 273. London: Ballière, Tindall & Cox, 1888.

To the older laryngoscopist Dr. Prosser James is well known as a pioneer in modern laryngology. The present edition of his manual, much of which has been rewritten, condensed and rearranged, is a marked improvement on the former ones in material, in diction and in illustration. We note a claim for devising the nasal dilator known as Fränkel's, the use of which has done much to stimulate researches in rhinoscopy and to develop knowledge of diseases of the interior of the nose. The subject of intubation of the larynx is given due prominence, and the apparatus of O'Dwyer is well illustrated. Cutting sickle-shaped knives devised by the author are presented as admirably adapted for the excision of certain morbid growths of the larynx, and for excision of the uvula and the tonsils. The Jarvis snare is duly recommended for the purposes for which it was contrived; but for some of them the author has found it more advantageous to use a bent canula instead of the straight one. We notice an illustration of an exceedingly delicate pair of nasal forceps for the removal of foreign bodies. As far as our recollection serves, these are the main, fresh features of this new edition of a valuable little treatise for practitioners entering upon the special study of diseases of the throat and of the nasal passages.

CORRESPONDENCE.

THE SUCCESSFUL PALLIATION OF HAY FEVER.

To the Editor of The Medical News,

Sir: It may interest some of your readers to hear the details of a palliative treatment of hay fever which has secured almost entire relief to a patient who had submitted to a thorough, yet unsuccessful, course of radical treatment with the galvano-cautery, caustic acids, chisels, saws, etc.

The drugs employed, atropine and cocaine, are well known in connection with this disease, but the mode of their use may be novel. The patient is directed to take $\frac{1}{200}$th grain of atropine sulphate on rising, and to repeat the dose every four hours till bedtime. If any dose fails to check running from the nose, it may be repeated in half an hour. Should dryness of the nose continue longer than four hours, the atropine may be withheld until renewal of the flow. Incipient dryness of the mouth is a safe and convenient indication to use in limiting the dosage of the drug. The effects of atropine are two: First, it diminishes exalted peripheral sensibility, and thus renders the nose less sensitive to the

special irritant cause of hay fever; sneezing is diminished or abolished, and with it a train of distressing symptoms. Secondly, it checks the watery secretion of the nose, and thus prevents washing away of the cocaine before it has practically reached the surface to which it must be applied.

For the local use of cocaine the wire cotton-carrier, shown in the cut, is the most convenient instrument yet

Cotton-carrier. ¾ full size.

devised. It is made of spring-tempered German silver, or brass wire one-twenty-fourth inch thick, with a ring formed at one end, the body curved at right angles to the plane of the ring, and the tip *longitudinally* scratched with a fine file or sand-paper in order to engage the cotton when rotated in it. The total length of the finished instrument is six inches. The wire must, of course, be annealed *near the sharp bends*, by heating red-hot and *suddenly quenching*. Iron or steel wire should never be used on account of its liability to rust and break in the nose. A very small quantity of absorbent cotton is twisted about the tip, care being taken to cover the rounded point, and the patient, holding the convex curve uppermost, passes the little finger into the ring and thereby securely grasps an instrument with which he can convey cocaine to all parts of the nose. The physician should perform the first application, touching the turbinated bones and meati on all their surfaces, paying especial attention to the floor of the nose and the anterior commissure. The space thus reached measures approximately four inches horizontally by two inches vertically in its greatest diameters.

During this operation the patient should be directed to notice the variations in sensation, some spots seeming to burn, itch, smart or cause sneezing or lachrymation. These spots should be mentally mapped out by the patient, who thus becomes possessed of a chart of the areas causing his distress. The physician then proceeds similarly with the other nostril and bids the patient to take hold of the instrument while *in situ*, manipulate it for himself, and to withdraw it from its greatest penetration, about four inches. This revelation of his own anatomy inspires confidence, and the physician's assurance that there are no structures in the nose which the patient's sensations will allow him to injure will soon lead to a most surprising ease of self-treatment, with an accuracy of touch and certainty of result impossible for an outsider to attain. With the assistance of atropine internally, weak solutions of cocaine will clear the nose, and therefore relieve other dependent symptoms, such as congestion and itching of the eyes, itching of the roof of the mouth, of the throat, ears and chest, and asthma.

The eyes will rarely need special attention, but in such rare cases they may be gently touched in both corners with a one or two per cent. solution of cocaine on the cotton-carrier, a fresh pledget of cotton being used. For the nose the solution may vary from one-half to four per cent., according to the severity of the case and the time of day, stronger solutions being required on rising and toward evening. It will rarely be necessary to employ a solution stronger than four per cent., a failure of which shows either a failure to reach the peccant area or that the cocaine is being washed away, and therefore indicates another application of cocaine or another dose of atropia.

Compared to this mode of application of cocaine other modes are clumsy, inefficient and wasteful. Atomization and instillation cannot reach the surfaces abnormally jammed together by the engorged bloodvessels, and without this indispensable condition cocaine is worse than useless, because more or less of it will be absorbed by the system, with injurious tendency. This delicate cotton-carrier can separate any surfaces forced together by engorgement, and be allowed to remain in contact with the sensitive spot, while the hands are free for any duty. The camel's-hair brush, which is sometimes used, has a clumsy quill preventing its soft and scattering hairs from reaching the tortuous passages, and it is furthermore dirty and difficult to clean, leading to a rapid deterioration of the cocaine solution. On the contrary, the cotton is readily pushed off the wire with a handkerchief or another piece of cotton, and the wire thus cleansed instantly. The quantity of cocaine used with the wire is very small, two or three grains per day being ample for a severe case. The quantity of atropine, likewise, seems absurdly small, a steady consumption of five granules daily for a month aggregating only three-quarters of a grain. It is very important that the granules of atropine be accurately made. This cannot be done on a small scale and it is therefore best to buy them of a large manufacturing house of good reputation. Wyeth's triturates have been found satisfactory.

The above treatment may be much assisted by general measures. Draughts or exposure to ordinary causes of cold in the head should be avoided, likewise sudden, great changes of light. Dust and respiratory irritants of all kinds are injurious. Sneezing can always be controlled by biting the upper lip, if other means fail, the pain of the bite being increased by a determined effort of will to the point necessary to obliterate the incitement to sneeze. Useless coughing must be strictly repressed. Rapid walking or running upstairs powerfully assist the action of cocaine for obvious reasons, and likewise mental occupation, reading, for instance, often rapidly comforting eyes apparently too photophobic for use. Diet should be ample in quantity, and non-inflammatory in quality. The hours of sleep should be prolonged.

These measures are the result of a large number of experiments, and as they have secured practical immunity to a severe case of twenty years' standing, they are recommended in confidence as a means readily available for every practitioner to use in relieving this opprobrium of his profession. Their applicability is believed to be general, no reason appearing why a patient should not be nearly as comfortable during his period of hay fever as at other times. Polypi or abnormal growths in the nose should, of course, be removed in any event. With his tiny armamentarium in his pocket the whilom victim has for

three summers fearlessly trampled the rag-weed and breathed through his nose its poisonous pollen, sure of immediate relief from any paroxysm. A. H. L.

September 10, 1888.

NEWS ITEMS.

The University of Michigan.—*The Physician and Surgeon* for September criticises the Board of Regents of this institution for failing to fill the existing vacancy in the chair of Obstetrics and Gynecology and Diseases of Women and Children. The medical faculty had selected and recommended a candidate eminently fitted and qualified for the position; a man who is known and recognized by the medical profession through his writings and his success in the practice of his branch, as one of the leading gynecologists of this country. But the Board was shown one objection to making the appointment which more than counterbalanced all these intrinsic qualifications. Through the reputation of his ability, he has built up a large and lucrative practice in the city of Detroit; and not being willing to sacrifice this and reside in Ann Arbor, the appointment was not made, because it has been decided that in the future all appointees to professorships in the *medical* department must live in Ann Arbor.

It seems as if the regents have an actual fear that by employing men having the reputation of clinical workers and clinical teachers, it might appear that they regarded clinical instruction an essential feature in medical education. To admit this would not be consistent with their persistent neglect to provide facilities for such instruction; their indifference to the requests of those who are faithfully laboring to build up a clinic; and their opposition to the movement that will furnish the medical department with the greatest amount of clinical advantages.

Epidemic Disease.—An important memorandum on the proceedings which are advisable in places attacked or threatened with epidemic disease, which has been drawn up by Dr. George Buchanan, F.R.S., has been issued to sanitary authorities by the Local Government Board. In this memorandum it is stated that, wherever there is prevalence or threatening of cholera, diphtheria, fever or any other epidemic disease, it is of more than common importance that the statutory powers conferred upon sanitary authorities for the protection of the public health should be well exercised by those authorities acting with the advice of their medical officers of health.

Proper precautions are equally requisite for all classes of society. But it is chiefly with regard to the poorer population, therefore, chiefly in the courts and alleys of towns, and at the laborers' cottages of country districts, that local authorities are called upon to exercise vigilance and to proffer information and advice. Common lodging-houses and houses which are sublet to several small holdings always require particular attention.

Wherever there is accumulation, stink or soakage of house refuge or of other decaying animal or vegetable matter, the nuisance should as promptly as possible be abated, and precaution should be taken not to let it recur. Especially examination should be made as to the efficient working of sewers and drains, and any defect therein, and any nuisance therefrom, or from any foul ditches or ponds, should be got rid of without delay. The ventilation of sewers, the ventilation and trapping of house drains and the disconnection of cistern overflows and sink pipes from drains, should be carefully seen to. The scavenging of the district and the state of receptacles for excrement and of dust-bins will require close attention. In slaughter-houses, and wherever animals are kept, strict cleanliness should be enforced.

In the removal of filth during periods of epidemic disease it is commonly necessary to employ chemical agents for reducing or removing the offence and harm which may be involved in the disturbance of the filth. In the removal of privy contents these agents are more particularly wanted if the disease in question be cholera or enteric fever. The chemical agent should be used liberally over all exposed surfaces from which filth has been removed. Unpaved earth close to dwellings, if it be sodden with slops or filth, ought to be treated in the same way.

Sources of water supply should be well examined. Water from sources which can be in any way tainted by animal or vegetable refuse, especially those into which there may be any leakage or filtration from sewers, drains, cesspools or foul ditches, ought no longer to be drunk. Above all, where the disease is cholera, diarrhœa or enteric fever, it is essential that no impure water be drunk.

The liability of leaky pipes to act as land drains and to receive foul matters as well as land drainage through their leaks is not to be overlooked. And such leaky pipes, running full of water with considerable velocity, are liable to receive, by lateral insuction at their points of leakage, external matters that may be dangerous. This latter fact is not recognized so generally as it should be, and ignorance of it has probably baffled many inquiries in cases where water services have in truth been the means of spreading disease.

If, unfortunately, the only water which for a time can be got should be open to suspicion of dangerous organic impurity, it ought at least to be boiled before it is used for drinking, but then not to be drunk later than twenty-four hours after it has been boiled. Filtering of the ordinary kind cannot by itself be trusted to purify water. It cannot be too distinctly understood that dangerous qualities of water are not obviated by the addition of wine or spirits. When there appears any probable relation between the distribution of disease and of milk supplies, the cleanliness of dairies, the purity of the water used in them, the health of the persons employed about them, and the health of the cows that furnish milk should always be carefully investigated. Even apart from any apprehension of milk being concerned in a particular outbreak of disease, it is desirable that English people should adopt the custom, which is always followed in some Continental countries, of boiling all milk at once upon its reception into a house.

The washing and lime-whiting of unclean premises, especially of such as are densely occupied, should be pressed with all practicable despatch.

Overcrowding should be prevented, especially where disease has begun, the sick room should, as far as possible, be free from persons who are of no use to the patient,

Ample ventilation should be enforced. It should be seen that windows are made to open, and that they are

sufficiently opened. Especially where any kind of infective fever has begun. It is essential, both for patients and for persons who are about them, that the sick room and the sick house be constantly traversed by streams of fresh air.

The cleanliest domestic habits should be enjoined. Refuse matters should be speedily removed or destroyed; and things which have to be disinfected or cleansed should always be disinfected or cleansed without delay.

Special precautions of cleanliness and disinfection are necessary with regard to infective matters discharged from the bodies of the sick. Among discharges which it is proper to treat as infective are those which come in cases of smallpox and scarlatina from the affected skin; in cases of cholera and enteric fever from the intestinal canal; in cases of diphtheria and scarlatina from the nose and throat; likewise, in cases of any eruptive or other epidemic fever, the general exhalations of the sick. The caution which is necessary with regard to such matters must, of course, extend to whatever is imbued with them; so that bedding, clothing, towels, handkerchiefs and other articles which have been in use by the sick may not become sources of mischief, either in the house to which they belong or in houses to which they are conveyed. So far as articles of this class can be replaced by rags, or things of small value, it is best to use such things and burn them when they are soiled. Otherwise clothing and infected articles should be subjected to the disinfection of the sick room, or be removed for disinfection by heat.

In enteric fever and cholera the evacuation should be regarded as capable of communicating an infectious quality to any night-soil with which they are mingled in privies, drains or cesspools; and after such disinfection of the mass is practicable, they should be disposed of without delay and under the safest conditions that local circumstances permit. They should not be thrown unto any fixed privy receptacle, and above all, they must never be cast where they can run or soak into sources of drinking water.

All reasonable care should be taken not to allow infective disease to spread by the unnecessary association of sick with healthy persons. This care is requisite, not only with regard to the sick house, but likewise with regard to schools and other establishments wherein members of many different households are accustomed to meet.

If disease begins in houses where the sick person cannot be properly accommodated and tended, medical advice should be taken as to the propriety of removing him to an infirmary or hospital. Every sanitary authority should have in readiness a hospital for the reception of such cases.

Where dangerous conditions of residence cannot be promptly remedied, it will be best that the inmates, while unattacked by disease, remove to some safer lodging.

Privation, as predisposing to disease, may require special measures of relief.

In certain cases special medical arrangements are necessary. For instance, as cases of cholera in this country often begin somewhat gradually in the comparatively tractable form of what is called "premonitory diarrhœa," it is essential that, where cholera has appeared, arrangements should be made for affording medical relief without delay to persons attacked, even slightly, with looseness of bowels. So, again, where smallpox is the prevailing disease, it is essential that all unvaccinated persons (unless they previously have had smallpox) should very promptly be vaccinated; and that revaccination should be performed in cases properly requiring it.

It is always to be desired that the people should, as far as possible, know what real precautions they can take against the disease which threatens them, what vigilance is needed with regard to its early symptoms, and what (if any) special arrangements have been made for giving medical assistance within the district. For the purpose of such information printed hand-bills or placards may usefully be employed, and in cases where danger is great house-to-house visitation by discreet and competent persons may be of the utmost service, both in quieting unreasonable alarm and in leading or assisting the less educated and the destitute parts of the population to do what is needful for safety.

The present memorandum relates to occasions of emergency. Therefore the measures suggested in it are essentially of an extemporaneous kind; and permanent provisions for securing the public health have, in express terms, been but little insisted on. It is to be remembered, however, that in proportion as a district is habitually well cared for by the sanitary authority, the more formidable emergencies of epidemic disease are not likely to arise in it.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 4 TO SEPTEMBER 10, 1888.

A Board of Medical Officers, to consist of CHARLES H. ALDEN, *Major and Surgeon;* GEORGE M. STERNBERG, *Major and Surgeon;* HENRY MCELDERRY, *Major and Surgeon;* and EDWARD C. CARTER, *Captain and Assistant Surgeon,* is constituted to meet in New York City, on October 1, 1888, or as soon thereafter as possible, for the examination of Assistant Surgeons for promotion, and of candidates for admission to the Medical Corps of the Army.—*S. O. 203, A. G. O.*, September 1, 1888.

WORTHINGTON, J. C., *Captain and Assistant Surgeon.*—Ordered from Fort Crawford, Colorado, to Fort Townsend, Washington Territory.—*S. O. 206, A. G. O.*, September 5, 1888.

HALL, J. D., *Captain and Assistant Surgeon.*—Ordered from Fort Townsend, Washington Territory, to Fort Niagara, N. Y.—*S. O. 206, A. G. O.*, September 5, 1888.

BROWN, P. R., *Captain and Assistant Surgeon.*—Ordered from Fort Niagara, N. Y., to Fort Sidney, Nebraska.—*S. O. 206, A. G. O.*, September 5, 1888.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING SEPTEMBER 10, 1888.

PURVIANCE, GEORGE, *Surgeon.*—To proceed to Fairport, Ohio, as Inspector, August 27, 1888.

MURRAY, R. D., *Surgeon.*—To proceed to Key West, Fla., September 5, 1888.

HUTTON, W. H. H., *Surgeon.*—To take temporary command of Camp Perry, Fla., September 8, 1888.

GUITÉRAS, JOHN, *Passed Assistant Surgeon.*—To proceed to Jacksonville, Fla.; after return from duty, on special train from Jacksonville, to Hendersonville, N. C., September 8, 1888.

BRATTON, W. D., *Passed Assistant Surgeon.*—To proceed to San Francisco, Cal., and report to Surgeon H. W. Sawtelle, for duty, September 8, 1888.

WASDIN, EUGENE, *Passed Assistant Surgeon.*—To rejoin his station at Mobile, Ala., September 5, 1888.

MAGRUDER, G. M., *Assistant Surgeon.*—To proceed to Mobile, Ala., and assume temporary charge of the Service, Aug. 31, 1888.

FATIIC, J. B., *Assistant Surgeon.*—To proceed to Memphis, Tenn., and relieve Passed Assistant Surgeon C. T. Peckham, August 31, 1888.

MAGRUDER, G. M., *Assistant Surgeon.*—To proceed to Way Cross, Ga., September 6, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, SEPTEMBER 22, 1888. NO. 12.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, WASHINGTON, 1888.

THE PRESIDENT'S ADDRESS.

Delivered September 20, 1888.

ON MEDICAL MUSEUMS,

With special reference to the Army Medical Museum at Washington.

BY JOHN S. BILLINGS, M.D.,
SURGEON, U. S. A.

GENTLEMEN OF THE CONGRESS: Our articles of confederation require that the President shall give an address. In endeavoring to comply with this regulation I must ask your indulgence, for, while I think I have something to say, I cannot give you such a discourse as would befit the audience, the occasion and the subject.

The prominent characteristic of the great majority of the societies composing this Congress is that their members have, as a rule, been chosen because they have either made some valuable contribution to medical literature, or have, in some way, rendered aid to the profession; in other words, they are supposed to be men whose labor and thought have not been confined to their own interests, or to those of their own patients. It may, therefore, be assumed that you are all interested in medical science, not merely as a means of giving new modes of diagnosis or of treatment, but also for its own sake, for the sake of knowing, for the pleasure of investigation, and in the hope of helping others, and that, while the majority have devoted themselves more or less to special branches, they have not, in so doing, lost interest in what may be for the general good of the whole profession.

I am here as the representative of the medical departments of the general government, which has need of the best knowledge of all the specialties, and is beginning, in its turn, to do something for each.

The physicians in the government service are all general practitioners, and are expected to have such an education and training as will fit them to deal, alone and without consultation, with the diseases and injuries to which men, women, and children are liable. You have been, and still are, their teachers—in the lecture-room and the hospital before they entered the service—in your text-books, monographs, and contributions to journals or transactions which follow them to their widely scattered posts of duty. They are your warm friends; the more you discover, the greater your skill, the more recognition which your work receives, the better they are pleased.

Within the last twenty-five years the general government has, in its turn, done something for medicine and for you, by founding and maintaining a medical library and museum in Washington under the direction of the Medical Department of the Army.

I have had occasion several times to call attention to the library, which no doubt is that part most immediately useful to physicians, and which has attracted most attention. To-night I propose to speak of the other branch, in whose proper development it is desirable that you should take an intelligent interest, and after giving a brief sketch of the development of modern medical museums we will consider more especially our own national medical collection as it is, and as it ought to be.

The origin of collections of objects of natural history was possibly, as suggested by Beekman, the custom of keeping curious objects in temples; but we have no record of the formation of any collections specially connected with anatomy or medicine before the sixteenth century. It is true that human anatomy had been introduced in the schools by Mundinus in 1306, and that no doubt in Bologna, in Paris, and a few other places, a skeleton or two was preserved for purposes of instruction; but alcohol was unknown as a preservative before the end of the fifteenth century, anatomical details were of no interest until Vesalius had stirred up controversy with the Galenists, and injected preparations were not thought of until after Harvey's announcement, in 1628, of the discovery of the circulation of the blood.

The introduction of the use of the microscope at the beginning of the seventeenth century, and the collections of preparations for use with this instrument made by Leeuwenhoek and Ruysch, gave a powerful stimulus to formation of museums of this kind. The most famous of these collections was that of Ruysch, purchased in 1717 by Peter the Great, and sent to St. Petersburg. Ruysch was practically the first to prepare injected anatomical specimens for permanent preservation, and, if the stories told of his work are true, he made preparations which have never been surpassed. His museum was a very ornamental one, the bones and skeletons being arranged in various devices, the plants in bouquets, while scattered through the whole were beautifully engrossed sentences from the Latin poets.

The most famous medical museum in the latter half of the eighteenth century was that founded by Fontana, at Florence. This still exists, filling a series of rooms, and consists mainly of wax preparations, beautiful to look at, but inaccurate, and of little scientific value.[1]

[1] The first use of wax models to represent pathological specimens or dissected preparations of parts of the human body is attributed to a Sicilian priest, Gaetan Jules Zambo, who lived in the latter part of the seventeenth century, and who had been accustomed to make wax models of diseased or deformed hands, feet, etc., to be used as *ex voto* offerings at the shrines of certain saints. The fame of these induced a Florentine surgeon, Ricci, to visit the priest and to get him to model some pathological specimens which he furnished. A Franciscan, named Desrones, brought this art to France, and made many such models between

During the first half of the present century a number of private collections were formed by anatomists, pathologists and surgeons. Most of these have become public collections, either by gift or purchase, and the rest have been dispersed or destroyed. There is not in existence, at the present time, any large collection of specimens pertaining to human pathology which is the property of an individual, and is at all comparable to those made by John or William Hunter, Astley Cooper, Howship, Liston or others. Commenting on this fact, Sir James Paget writes me that he does not know of any large private pathological collection, and that he believes the change to be entirely for the better.

The necessities of modern progress in anatomy, physiology and pathology, have led to the creation of medical museums in all parts of the civilized world. In most of the continental capitals these are connected with universities supported by the state. In Great Britain and in this country they are, as a rule, connected with private, or semi-private institutions for medical teaching. This difference is connected with the relative position which medicine holds in the educational machinery of the state in different countries. Where medical education is furnished by institutions directly supported by the government, the museums, which are a part of the apparatus required, are, of course, also supported by the government.

Through the aid of friends, whose kindness in replying, or in obtaining replies, to somewhat troublesome inquiries, I cannot sufficiently acknowledge, I have obtained certain data with regard to some of the most important medical museums now existing in the world, and a part of these data are summarized in the table before you. Evidently the city having the most valuable aggregate of anatomical and pathological specimens at the present time, is London, which contains the collections of the Royal College of Surgeons, of St. Thomas's, Guy's, St. Bartholomew's, St. George's and other hospitals, and of University College, the College of Physicians and others. The oldest public anatomical museum in London is probably that of St. Bartholomew's, which, in 1726, had a room set apart for the purpose under the charge of John Freke, and which received the private collection of Abernethy. The most important medical museum in the world, and the one which has exercised the greatest influence in giving direction to anatomical and pathological studies, and in serving as a model for the formation of other collections, is undoubtedly that of the Royal College of Surgeons of London, the foundation of which was the collection made by John Hunter, purchased by the government in 1799. In one sense it is not a government institution, the funds from which it is now supported not coming directly from government grants; but, in another sense, it is truly such, since the College may be looked upon as an agent of the government having special charge of matters connected with medical education, as it is the principal examining body for those proposing to practise surgery in Great Britain.

the years 1703–1706, and Bianchi formed a large collection of the same kind in Italy. It was scattered after his death, and the last vestiges of it were two models representing a healthy and a diseased liver, which were to be seen in Innspruck in 1766. (Percy et Laurent, in Dict. des Sci. Méd., Paris, 1818, vol. xxxv., article "Museum.")

The great value of the Hunterian collection lies in the breadth of its scope, which includes every branch of medical science; but it is preëminent in illustrations of human morphology and its abnormities. The museums of the great hospital medical schools are relatively richer in the department of pathological anatomy, specimens of which they have greater facilities for obtaining. Among these there is, of course, a certain amount of duplication of matters of interest; but no two pathological specimens are precisely alike, and the question discussed in the Paris school one hundred and fifty years ago, viz.: "An pro distinctis ægris ægritudines diversæ?" is one that often occurs to a curator as he examines new specimens which differ but little from those already in his collection, but which do differ in some respects, and with regard to which he must decide as to whether, upon the whole, they are worth the trouble and cost of preservation.

Edinburgh and Dublin have also each large and valuable collections pertaining to anatomy and medicine.[1] In Paris the medical museums are those of the Faculty of Medicine, including the Musée Dupuytren devoted to pathological anatomy, and the Musée Orfila devoted to human and comparative anatomy, materia medica, natural history and instruments and apparatus.

Professor Leon Le Fort, to whom I am indebted for data with regard to these collections, remarks that a large proportion of the anatomical specimens of the Orfila museum come from candidates who take part in concours opened for positions connected with the anatomical teaching of the faculty—such as prosectors, demonstrators, etc., each candidate being required to furnish from ten to thirty specimens.

The medical museums of other European countries are connected as a rule with universities, and it is to be remembered that in these the different branches of medical instruction are each both more specialized and more comprehensive than is the rule with us. The professor of anatomy, of physiology, of pathology, has each his own building or institute, and, therefore, each his own museum; and unless this fact be held in view, comparisons between Continental and English, or American, medical collections may give very erroneous results.

With regard to the museums connected with American Medical Schools I will say little, referring you to the table and appended notes for such data as I have been able to collect. I am aware that in so doing I put aside a splendid opportunity to enlarge upon the general superiority of all these collections and the peculiar excellences of each, but I think that you all know as much about these as I do and there is time only for details with regard to the one American Museum in which I am specially interested. I will say only that the best museum connected with a medical school in this country is the Warren Museum in Boston, and that the history of the collections of wax models, upon which several of our museums have expended large sums of money, is very instructive as to how not to do it.

[1] I am indebted to Sir James Paget for the information given with regard to the greater number of the British museums. I had originally intended to attempt to obtain such data only from four or five of the largest; but on sending my little list of questions to Sir James he took such a kindly interest in the matter as to send a copy of these queries to a number of other museums with the request that they might be answered.

So far as mere number of specimens is concerned our own national medical collection is one of the eight largest in the world, and is increasing more rapidly than any other.

This collection, known as the Army Medical Museum, owes its inception to Dr. Wm. A. Hammond, one of whose first acts after becoming Surgeon-General, in 1862, was to issue a circular stating that "as it is proposed to establish in Washington an Army Medical Museum, medical officers are directed diligently to collect and to forward to the office of the Surgeon-General, all specimens of morbid anatomy, surgical or medical, which may be regarded as valuable; together with projectiles and foreign bodies removed, and such other matters as may prove of interest in the study of military medicine or surgery."[1] By the end of the year over a thousand specimens had been collected, and the catalogue printed in 1866 showed that it contained 7716 specimens. It is not my purpose in this address to trace the history of its development; that must be done elsewhere. It has recently been placed, with the Library, in a conveniently arranged fire-proof building, and on the first of July last contained over 15,000 specimens besides those contained in its microscopical department, divided as follows:

Comparative Anatomy	1,689
Pathological	8,354
Medals	384
Microscopical specimens	10,416
Normal Human Anatomy	2,961
Instruments and Apparatus	814
Microscopes	141
Miscellaneous	835

Besides these there are 375 specimens pertaining to normal human anatomy and 726 to pathological anatomy, which are in what is called the provisional series.

It is not, however, by number of specimens that the importance and value of museums of this kind can be judged; and in this case such a comparison would give an exaggerated and erroneous idea of the value of this collection. My object in this address is not to boast of what we have, but to indicate what we want; to point out what a National Medical Museum, arranged to meet the wants and interests of this country, should be, should have, and should do, and to suggest some of the ways in which this is to be brought about.

At first the Army Medical Museum was limited to military medical subjects, but of late years its scope has been greatly broadened, and is now nearly the same as that of the Royal College of Surgeons. It includes human anatomy, physiology, pathology, somatological anthropology, instruments and apparatus, and illustrations of methods of teaching connected with special departments of practical medicine. It does not at present include hygiene or materia medica, except in their immediate relations to the military medical service, and this for reasons which will be stated presently. That our National Medical Museum should be broad and comprehensive in its scope there can be no doubt, its requirements in this respect being quite different from those of collections formed and used more especially for the purpose of teaching medical students. The most practically valuable of these last are those formed by individual professors to suit their own specialties and methods of teaching. They need not, as a rule, be large. I may even say that they should not be large; for the labor of properly preserving a large collection is great, and the student, with his limited time and want of knowledge of what to look for, can examine but few specimens so as to profit by them. For the same reason specimens of rare abnormities, of double monstrosities, etc., are of little use in ordinary medical teaching as given in this country, and are not specially desirable in the museums of our medical schools.

You may have noticed that, in speaking of the scope of our museum, I said it included "human anatomy." This phrase does not mean that it has no specimens illustrating the structure of other animals,—for it has many, and needs many more; but it means that in this department its main purpose is not to make comparative anatomy an end to itself by exhibiting all known variations in structure throughout the animal kingdom as a basis for their study in relation to development and environment, causation and results. In other words, it is not an anatomical museum but a medical museum. The broad field of general biology, including natural history and comparative anatomy, will ultimately be covered by the National Museum, and in our medical collection it will be quite enough to illustrate human anatomy fully, using so much of the structure of the lower animals as will be useful in explaining why certain parts of the human body are thus, and so, and not otherwise. No sharp line of distinction can be drawn between the field of work of the general, and that of the medical museum. So far as morphology is concerned, they must necessarily overlap somewhat, since both want a certain number of the same specimens although using them to illustrate different points of view.

The medical museum should possess a series of specimens showing the normal anatomy of the domestic animals, or of animals used in experimental pathology, pharmacology or physiology as a basis for comparison with abnormal or pathological specimens derived from the same animals. It is in the section of embryology, illustrating laws of heredity and development, that specimens from the lower animals are most interesting, and this is especially the case in the study of human abnormities and monstrosities. It is quite possible that to some anatomists it may seem that no limitation should be placed to the scope of the museum in this direction, for it is easy to trace some connection between any variation in structure in any animal and some structure, normal or abnormal, in man, but the limitation is placed, with reference to the work of the National Museum, so as to secure the best results.[1]

The kind of specimens most valued for illustrating anatomy in a museum is now very different from what was sought for in the first half of this century. Dried and varnished dissections showing bloodvessels, etc., are now looked on as nearly useless, and are kept only as

[1] Circular No. 2, Surgeon-General's Office, Washington, D. C., May 21, 1862.

[1] In the great majority of medical schools in this country anatomical teaching has a much more limited field than in the German universities, and our professors of anatomy, following English traditions, are usually in training for surgery. We have, however, several who are devoting their entire work to anatomy in the broad sense, and for its own sake, and it is in this direction that progress will be made.

historical relics. Elaborate dissections under alcohol, mounted in opaque dishes, with flat glass covers, and sections of frozen bodies, similarly mounted, are what the student and the practitioner most desire to see. In our museum there are some excellent specimens of this kind, prepared under the direction of Professor His, of Leipzig; of Professor Cunningham, of Dublin; and by our own anatomist, Dr. Wortman. These, however, are only samples to show how the work should be done. We require several hundred such specimens to illustrate properly regional anatomy in relation to age and sex, while the possible applications of the same methods to the illustration of visceral displacements, hernias and deformities of all kinds are boundless. As regards physiology, but little can be done by museum specimens to illustrate function as distinguished from form and structure. The so-called physiological series in the Hunterian collection, is a series of organs illustrating variations in different families of the animal kingdom or at different ages; in other words, it illustrates ontogenic and phylogenic development. The things students or teachers of physiology are most anxious to see in a museum are specimens of instruments and apparatus employed in experimental physiology, or in the measurement of the special work of different organs, or in illustrating lectures on physiology. Illustrations of results obtained in experimental pathology often belong quite as much to physiology, as, for example, specimens of results of Gudden's atrophy method.

The Army Medical Museum has a only a beginning of such an anatomical collection as I have indicated as desirable. Like all other museums, it is richer in specimens illustrating osteology than in any other branch of anatomy, simply because such specimens are the easiest to obtain and preserve. We are accustomed to think that human anatomy is nearly exhausted as a field for original research, and that, at all events, every important organ or muscle or nerve has been figured, described and named. Granting this, so far as the adult is concerned, although it is by no means true even for him, we have still to study the development of each of these organs or groups of organs, as seen at different ages, and, for some of them, in different races. As fast as these points are seen to be of practical interest, either in connection with diagnosis or the surgical treatment of disease, they are investigated; but an ideal museum should furnish the investigator the means for his researches; and it must, therefore, collect specimens without special regard to what is at present known to be their practical interest. The collection of such series of specimens of each joint, region and organ, as I have in mind, including sections and dissections at different ages from the earliest appearance in fœtal life to extreme old age in man, and in many cases in the lower animals, is a slow process. Such specimens, and especially such series of specimens, can only be prepared by a skilled anatomist, and there are few such; hence, the formation of our ideal anatomical collection, limited though its scope may be, must be a work of time.[1]

[1] As Sir William Turner remarks: "Where a question in human embryology hinges upon an examination of parts in a very early state of development, we have often to wait for many years before an appropriate specimen falls into the hands of a competent observer."

There is ample material and scope for original work for half a dozen skilled anatomists for many years to come to supply the demands of this museum for illustrations of human morphology in its various relations, and it is not desirable to scatter effort over too wide a field.

The pathological section of a medical museum is its main feature, being, as Mr. Flower remarks, the section to which, in the eyes of Hunter and his successors, all others form merely the introduction. It is true that to some physicians specimens in this department seem to have little value; but they are balanced by those physicians whose chief interest in a case of disease is to get a post-mortem. No doubt much of the ancient pathology, and some of that which is quite recent, is comparable to the looking in the dark for a black spot which is not there, but those who despise pathology, and devote their entire attention to symptoms and treatment, err as much on one side as those who talk and act as if a knowledge of pathological anatomy could take the place of clinical experience do on the other. I do not know, however, that the doctrine usually preached, viz., that each man should attain the just mean in his views, is a true one. Certainly it is not the principle on which the universe seems to be constructed; the balance is maintained, not by having everything exactly symmetrical, but by excess in one direction balancing excess in another.

To secure pathological specimens in their most instructive forms for museum purposes requires, in many cases, not only considerable variation from the usual routine methods of post-mortem examinations, but very considerable delay in ascertaining the results. If, for example, we wish the best specimens of the results of cerebral disease, the brain must not be removed and sliced up in the usual manner; it should be hardened *in situ* to a certain extent, and its sections should be carefully considered with reference to their preservation in their relations to each other before they are actually made. There is need of a treatise by a skilled pathological anatomist giving such methods in detail from the modern point of view.

One of the most important sections of our museum is that devoted to microscopy, including normal and pathological histology and photomicrographic work. In the cabinets there are nearly 11,000 mounted specimens, illustrating almost every field of microscopical research. Many of these were made twenty years ago and more, and were mounted by processes which have not given good results, so that Dr. Gray, who is in charge of this section, estimates that about 3000 will be set aside as worthless; but the rest form a very valuable series to which additions are being constantly made, and materials for which we are specially anxious to obtain. In connection with this section a series of cultures of chromogenic and pathogenic bacteria is kept up for museum exhibits, and also to illustrate methods of work.

While the great majority of the specimens in a medical museum have some relation to diagnosis, prognosis, or therapeutics, the number of those which are of direct interest to the so-called practical physician is not very great. It includes models and casts illustrating dermatology, morbid growths, the results of amputations, excisions, plastic operations, etc., and instruments, apparatus, dressings, etc., of all kinds. Here also may be

classed hospital fittings and furniture, means of transportation for sick and wounded, model cases of instruments, emergency chests, etc. Our medical museum has a fair beginning of a collection of this kind, including over a thousand specimens; but many more are needed to make it reasonably complete. If each medical man who devises a stethoscope, a pessary, a speculum, an ophthalmoscope, or an electro-therapeutic appliance with which he is well pleased, would send a specimen to the collection, its increase would certainly be rapid, and it could always show the latest improvement.

An ideal medical museum should be very complete in the department of preventive medicine, or hygiene. It is a wide field, covering, as it does, air, water, food, clothing, habitations, geology, meteorology, occupations, etc., in their relations to the production or prevention of disease, and thus far has had little place in medical museums, being taken up as a specialty in the half dozen museums of hygiene which now exist.

Our own National Museum of Hygiene is, as you know, under the direction of the Medical Department of the Navy. It is a very interesting collection of sanitary appliances of various kinds; but it is not well housed, is much overcrowded, and its location is so inconvenient that it receives but few visitors, and, therefore, has by no means the educational influence that it ought to have. It should be provided with ample quarters in the immediate vicinity of the National and of the Army Medical Museums, to both of which it would form a very desirable supplement. In our medical museum, at present, military hygiene only is illustrated, and this only in a few branches, such as hospitals, means of transportation of wounded, etc. As regards materia medica, an exceedingly well arranged collection, including about 5,000 specimens, has been formed in the National Museum, under the direction of the Surgeon-General of the United States Navy, by Dr. J. M. Flint, of that service. The relations of materia medica to natural history, commerce, and the arts, which are subjects belonging especially to the National Museum, are as close as they are to medicine, and I am very glad that our national collection in this branch is where it is, and under its present management. In the Medical Museum we have a collection showing what is supplied in the way of drugs, instruments, etc., to the medical department of our army, and, as opportunity offers, we shall extend this to include the medical supplies of other armies or services.

The extent to, and manner in, which a medical museum should deal with anthropological and ethnological problems are not questions to be discussed in the abstract with advantage, since the answers must differ greatly according to circumstances. In our National Museums the matter has been so arranged that all material relating to anthropometry, or to real or supposed structural differences in man according to race, are cared for in the Medical Museum, while specimens illustrating manners and customs, implements, weapons, clothing, pottery, etc., are taken charge of in the anthropological division of the National collection.

The Army Medical Museum contains what may seem a large amount of material relating to human osteology, and especially craniology, in its relations to North American ethnology, or the history of the development of different varieties of man on this continent; but it is not actually half large enough to permit of drawing definite scientific conclusions from it. The majority of the crania which it contains have been measured to a certain extent, and the results have been published; but many other measurements are desirable to permit of comparison with series taken elsewhere, and even measurements already made must be repeated by later and better methods. We have been trying some experiments with composite photography and superimposed contour tracings as a means of obtaining typical outlines and dimensions for race groups of crania, and these give promise of good results. If the collections of crania of North American Indians in Boston, New York, Philadelphia and Washington could be brought together, a very much better average presentation of the majority of tribes or groups would be obtained than can be furnished by either of these collections taken separately. By composite photography and tracings, combined with uniform methods of measurement, we can practically bring these collections together, and obtain results nearly as satisfactory as if we had them all in one room. We have also fitted up one large room with instruments and apparatus for anthropometry in its widest sense, including psychophysical investigation, and it is intended to make this a complete laboratory for illustration of methods of work.

In London arrangements have been made to have such an anthropometric laboratory in an outbuilding at the South Kensington Museum. The two things have no connection, and it seems to have been placed there because it would obtain more visitors desirous of being measured and tested than if placed anywhere else. In this laboratory, which is, I believe, essentially the same sort of institution as that arranged by Mr. Francis Galton at the Health Exhibition in 1884, and is planned by Mr. Galton, any person can have the regular series of measurements and tests made upon himself for a charge of six cents. There are difficulties in the way of making a charge for such measurements in a government establishment, and there are also difficulties in undertaking to do such work gratis, chiefly on account of the cost. It is, however, so desirable that it should be done, and the data which such observations systematically carried on for a series of years would be so valuable, not only from a scientific point of view, but for practical purposes in connection with life insurance interests, and very possibly with practical medicine, that we should endeavor so overcome these difficulties in some way, and I think it can be done sufficiently, at least, to stimulate private enterprise in this direction. It is possible that we may yet see in large cities establishments of this kind, directed by skilled and reputable physicians having the confidence of the profession, where not only normal but abnormal conditions can be determined; places where the secretions can be tested chemically and microscopically, ophthalmoscopic and endoscopic examinations of all kinds made, the mode of functioning of muscles and nerves determined, and an authoritative record of the results made for the use of the individual, as evidence of his condition, or for the information of his physician. It would require an already established reputation and much skill and tact on the part of the director of such a laboratory, with absolute refusal to give prescriptions or advice in any shape, to make it fully successful; but it may be done.

An important feature of our national medical museum

should be to show methods of research and of instruction for the benefit of the investigators and teachers of the country. This includes instruments and apparatus, and, to a limited extent, illustrations of the modes of using them and of the results; it also includes diagrams, models, etc., used for illustrating lectures. For example, as soon as Koch's researches became known in this country, physicians, and especially medical teachers who visited the museum, asked if we could show them the apparatus used by Koch and Pasteur in bacteriological work, and eagerly examined the few specimens of cultures on solid media which we were able to exhibit. The anatomist comes to the museum quite as much to see methods of mounting and preservation, as to see the specimens themselves; the physiologist does not expect to see function directly exhibited, but he does hope to find information about kymographs and constant temperature apparatus, and he wants to see whether Kühne's artificial eye is so useful for teaching purposes that he ought to get one to illustrate his lectures.

In what has been said thus far, it is chiefly the utilitarian point of view that has been made use of; but this is by no means the whole matter. No art, and no branch of science should form the sole end and object of a well balanced life, and there are objects in every large museum which are of great interest, though they appeal rather to the emotional than the intellectual faculties of the spectator. There are many specimens in the Army Medical Museum which I would rather see removed than to lose John Hunter's lancet, which has no scientific interest whatever. So also its collection of between three and four hundred medals and tokens relating to medical institutions or distinguished medical men, or commemorating outbreaks of pestilence or the victories of preventive medicine, is one which should be made complete and fully displayed, though it would not be easy to demonstrate its utility to any one unless he were interested in the history of the struggles and triumphs of the medical profession.

The objects of a medical museum are to preserve, to diffuse and to increase knowledge. Its conservative function is to form a permanent record of what has been demonstrated and to fix the meaning of terms. Even in my brief experience of thirty years the terminology of anatomy, physiology, pathology, chemistry and of most of the specialties has greatly changed, and this not only by addition of new terms, but by the dropping of old ones. To get useful results from the older literature we must know the precise significance of the old words, and, in some cases, the best way to learn this is to examine the specimens prepared by those who used such terms in their descriptions. The specimens in our museum which came from the collections of Professor William Gibson and Dr. Frank Hastings Hamilton are especially valuable, because they were the basis of practical teachings, and should be examined by any one criticising these teachings.

A large proportion of the pathological specimens in this museum illustrate conditions which now rarely occur, forming a group which it is safe to predict will never be duplicated. It is not only that they were gathered during a great war, but that they illustrate the results obtained when antiseptic surgery, as now understood and practised, was unknown. Never again, I hope, will there be brought together such a collection of the effects of pyogenic microörganisms on gunshot wounds, especially of bone, as may be seen in its cases.

The museum also preserves, for future investigations, objects whose nature or relations are not understood at the time when they are received, and which occur so rarely that the means of studying them by comparison can only be obtained through such preservation.

Upon the function of a museum as a diffuser of knowledge;—as a means of education; it is needless to dwell. That it should also strive to increase knowledge is equally certain. This is to be effected by study and comparison of its materials. The results of such study and comparison of a part of the Army Medical Museum collection have appeared in the volumes of the *Medical and Surgical History of the War*. Another part will, I hope, soon be utilized in a study of its collection of human skeletons and crania which has been commenced by Dr. Matthews, of the Army. But a considerable part is as yet only in the stage of agglomeration, and our present business is to collect and preserve, leaving to the future its full utilization.

A medical museum is really used, for purposes of study, by very few persons; but through the teaching of those few its lessons are made known to the whole profession. American physicians in investigating a subject do not, as a rule, think of inquiring as to what museums can show with regard to it, simply because they have not had convenient access to large collections and are not accustomed to make use of them. Thirty years ago we were in much the same situation in respect to medical literature; but as the libraries have grown, desire for bibliographical research has grown also, and I think that in like manner when we have secured a comprehensive National Medical Museum it will not only be made use of, but will give a powerful stimulus to the formation and progress of other more special collections elsewhere.

What should be the relation of this central national collection to those formed in different parts of the country, either in connection with medical schools, or with museums of broader scope? Certainly they should help one another, and this can be done in many ways. I do not in the least object to a generous rivalry to do the best work, to have the most instructive and the most artistic preparations. That is a good thing. But I would say to the anatomist of a school, when you have made a preparation which is noteworthy, offer to make a copy for the national collection, where it will be seen by the anatomists of all schools and of all countries. To the pathologist of a medical school I would say, after you have secured type specimens for your own collection put aside other good specimens for the National Medical Museum, which will furnish you materials for the purpose.

On the other hand, the collections of the National Museum are available for study by any proper person, and its duplicates should be used to aid other museums which may be in special need of them.

In common with several of the largest and most important medical museums, more especially those of the Royal College of Surgeons and of the Faculty of Medicine of Paris, the Army Medical Museum has the advantage of being closely associated with a large medical library which is in the same building, and at present under the same direction. The increased utility and attractiveness which this gives to both library and museum are very decided.

It is true that in some other institutions similarly arranged there has been some grumbling as to the proportion of funds allowed to the museum and to the library respectively, the museum enthusiast claiming that the librarian would rather have one rare old pamphlet than half a dozen entirely new vertebrates, while the bibliophile is sure that the demand of the profession for access to a full supply of books and journals is much greater than that for access to specimens. I can only say, from my own experience, that one who has charge of a library only, will probably not hesitate to take museum funds, if he can get hold of them, to buy books; but that when one person is responsible for both he will endeavor to give each its fair share of the resources at his command.

If we had to choose between having a great national medical library and a great national medical museum, no doubt most of us would take the library, because it would be of more immediate use to us; but no such unpleasant alternative is forced on us. There is no reason why we should not have both, and we must have both.[1]

I have time for only a very condensed statement of the wants of our National Medical Museum. In the first place it needs the intelligent interest and friendship of the medical profession of this country. To a very considerable extent it has had this; were it otherwise it would not be what it is, nor where it is. But it needs more of it, and it can never have too much. Every medical man in this country should help a little and provide for the perpetuation of his name as that of a physician interested in the progress of the profession by sending at least one specimen to it. It is omnivorous in its demands for material, as will be seen by the circular which it has recently issued. But I will name as special wants, human embryos, especially those of a very early age, monstrosities and malformations of all kinds in man or in the lower animals; results of old injuries, such as fractures or dislocations, or of surgical operations, such as excisions, stumps, etc.; injuries and diseases of the eye, ear and nose; new growths of all kinds; diseases of the brain and spinal cord; and specimens illustrating the condition of bones, joints, brain, larynx and other organs in extreme old age.

In the second place it needs a regular supply of funds from the general government. To form and keep in proper condition such a medical museum as this should be is a more difficult and expensive matter than those not acquainted with such work would suppose, and the gifts of specimens from the profession must be supplemented by ample means for the preparation, preservation and proper display of these specimens, and also for the purchase of apparatus and typical specimens of foreign work, in order that the Museum may be always able to show the latest state of knowledge and the best ways of doing things.

The annual appropriation for the Museum at present is $5000. This is sufficient, except that the printing of the catalogue, of which I shall speak presently, must be an extra charge; but the medical profession should see to it that the amount is not reduced in the rhythmic spasms of partial economy with which some of our statesmen are afflicted.

The third need of the Museum is of a series of the right kind of descriptions of its specimens, given on labels and in a catalogue. Unaided by such descriptions it has for each man that which he can see in it, and no more. One man will see nothing but an old piece of bone, a shapeless mass of tissue bleached by alcohol, a case of old, dingy brass instruments. Another will see in the same things a rare joint atrophy, implying curious abnormal nerve influence; a leprous nodule, whose history, if we knew it, would reach back through the lazar-houses of the middle ages to the far east, and whose bacilli may be the lineal descendants of those that vexed Naaman the Syrian; a case of microscopes illustrating the development of that instrument, from the first rough iron tube of the spectacle-maker of Nuremberg to the delicate and complicated instrument through which we now peer curiously into that world which lies within the world of unassisted vision. By our labels and catalogues we must tell men what to see; but to do this we must first see ourselves. The aphorism that a first-class museum would consist of a series of satisfactory labels with specimens attached means a good deal. Something has been done in this direction, as you will see on inspection of the cases; but I often wonder what sort of labels a man who has spent years in investigating the normal and abnormal structure and relations of one organ would write for our specimen of that organ. Such help as this we need; kindly, truthful criticism, the pointing out of errors and of new points of view for this mass of material.

We also need a series of printed catalogues. One of these should be in the form of compact handbooks relating to particular sections of the collection, and intended partly for the use of visitors while in the museum and partly as a ready means of letting distant friends know what material it most needs in different departments. It should also print a complete illustrated catalogue of the whole collection for the use of the investigators and teachers of the profession. Congress has been requested to grant authority for the printing of such a catalogue by the Government Printer. The material for it is nearly ready, and it would make three volumes each the size of one of the volumes of *The Medical and Surgical History of the War of the Rebellion*.

The subject of museum organization and management is one of those with regard to which it has been said that a man who is interested in it passes through three successive states of mind, viz.: First, he thinks he knows almost all about it, except a few minor points of detail which he is going to look up. Second, he feels that he will never know anything about it. Third, he believes he knows a little and hopes by experience and study to know more.

The museum needs earnest and well-trained students to work up its collections so as to advance knowledge, and, at the same time, to display properly the specimens so as to make them most instructive. To all such students we shall endeavor to afford opportunities for this work. Precisely how this is to be effected is not yet clear, but here is abundance to be done, and there are quite a number of men coming on the stage who want to do such work for its own sake, because it gives them

[1] "There are few things in relation to our science of which I am more sure than this, that every possible method of studying it should be by all possible means promoted." Sir James Paget, in Lancet, January 22, 1887, p. 159.

pleasure. Sooner or later we shall have half a dozen or more of specially trained men busy in the laboratories and work-rooms of the museum, each engaged on his own problems, and the whole for the common good.

The medical museum hints at matters which lie outside the scope of known physical and chemical laws. Physicians have not, as a rule, been very virulent theologians; their studies and their daily work tend to give them compensation of bias in this particular, and, therefore, in this age of transition in beliefs, it is not so true of them as of others, that "the old hopes have grown weak, the old fears dim, the old faiths numb." In our medical museum yonder may be found abundant illustrations of the results of physical and chemical actions and reactions upon what was once living matter, and was connected with centres of consciousness, of intellect, of emotions which imply something more than ordinary protoplasm or mere metabolism. It brings together strange company. The men who dwelt on the sides of the Andes in the old Aztec days, the men who built cities in the Gila Valley centuries before the days of Columbus, the Esquimaux, and the Indian of the plains, black and white, red and yellow, all sorts and conditions of men are represented in those bony caskets which once held their centres of life and thought; but now are reckoned only as so many crania in the Museum catalogue. The great majority of the pathological specimens imply either suffering or death, or both, of the individual from whence they came. Some of them are the results of intemperance, of lust, of folly and crime; but some are the results of unselfish sacrifice for the good of others, true flowers of blood and pain. A large group of them form one of the relics of an acute paroxysm of disease of a great nation. The old pensioner likes to keep the battered ball which crippled him, and so these relics have an interest beyond that which is purely professional. That the nation is not crippled by its loss, takes nothing from their interest, and the fact that we are physicians does not imply that we look upon them from a medical or scientific stand only. Those of the combatants who survive are now better friends than ever, and the museum specimens, coming as they do from the sick and wounded of both armies, and contributed by both Union and Confederate surgeons, enforce the lesson of the unity of the profession and of its interests, as well as that of our country.

Our museum, like the library with which it is associated, includes all the specialties. No physician is so learned or skilful that he can find no instruction there, and no one is so ignorant that he cannot comprehend some of the lessons which it teaches. Taken together these institutions should contribute in no small degree to our national prestige, for which eminence in scientific work and teaching is an essential element, and if it be remembered that they are only twenty-five years old, and that during that period we have been making medical history at a tremendous rate, surely some incompleteness and crudeness may well be excused or overlooked.

Speaking in behalf of the army medical department, and for the dead as well as for the living who have been charged with this work, I can truly say that we have been very proud of our charge, and that we have done our best, each according to his capacity and opportunities, to make the museum and library such as a great profession and a great nation have a right to demand.

AMERICAN SURGICAL ASSOCIATION.

THE PRESIDENT'S ADDRESS.

Delivered September 18, 1888.

THE RELATION OF SOCIAL LIFE TO SURGICAL DISEASE.

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THERE is no tyranny more exacting or despotic than that exercised by the conventionalities which govern our living. All stages of life from infancy to old age are under its domination. It dictates the education, the manners, the walk, the dress, the forms of speech—in fine, the whole being. Beyond all contradiction the behests of fashion are vastly more influential in governing public conduct than any arguments drawn from the teachings of structure and function. As a rule, when the conflict is between taste and reason, the victory will be on the side of taste. In nothing is this more forcibly displayed than in the apparel used to protect the body.

It is not an agreeable task to peer into the wardrobes or dressing-rooms of our fair countrywomen. I have no special taste for exploring museums or bizarre collections. Indeed, without a key to interpret the curious and ingenious mechanisms for clothing the form divine, such an exploration would be like an archæologist attempting Egyptology ignorant of cuneiform inscriptions. I have, however, some knowledge of human anatomy in its broadest sense, and when I look upon the masterpieces of the human form, whether in marble or on canvas, a Belvidere Apollo or a Venus de Medici, and contrast these with the dressed-out specimens of modern women, I am forced to admiration; not so much at the amazing ingenuity displayed in concealing the divinely appointed form, as at the plasticity and patient submission of mortal clay under the despotism of a conventional inquisition. Were these processes of mutilation and abnormality harmless, did the body consist of a mere mass of protoplasm capable, under the application of certain stimuli, of assuming normally protean shapes, the subject might be passed over with the feeling of a naturalist, but this is not so. These violations of the laws of structure bring with them serious penal inflictions, which, did they terminate with the original offender, might be dismissed with a sentiment of pity, but projecting, as they do, their baneful consequences to successors they become proper subjects for criticism.

Let me name a few examples as illustrative of my subject. For some time the profession has been speculating on the causation of

NASAL AND POST-NASAL CATARRH,

with its accompanying auditory defects, the growing frequency of which cannot have escaped general observation. Doubtless no single agency will explain the presence among us of this unpleasant disease, yet there are facts connected with this affection which to me are very suggestive. I cannot recall an instance in which I have met with the disease among females belonging to the Society of Friends, Dunkards, or Mennonites. If this, on more extended observation, proves to be true, may not the head-dress peculiar to these people be accepted

in explanation of their exemption. The bonnet which at one time overshadowed the entire head, as all know, has been gradually shrinking in its dimensions, until it has become a mere shadow of its former self, and offers no protection whatever to the head. As a substitute, I would not insist upon the quaint headgear of the Friend, though I believe that any modification which will protect this part of the body will lessen the tendency to catarrhal inflammation of the naso-pharyngeal mucous membrane.

MUSCULAR RESTRAINT.

A legion of physical imperfections arises from muscular restraint. Among these may be mentioned weak ankles, narrow or contracted chests, round shoulders, projecting scapulæ and lateral curvature of the spine. The foolish concession to appearance and the unwise partiality of parents for enforced systems of education, the demands of which bear no just proportion to the capacity of the infantile mind, constitute the initial or determining force of these physical imperfections. In many cases the weak ankles of children, characterized by eversion of the feet, thus allowing the superincumbent weight of the body to be transmitted to the latter, inside of the proper centre of support, is largely chargeable to the miserable practice of placing on the little ones, long before they are able to walk, boots tightly laced up the limb some distance above the ankles. The confinement of the flexor and extensor muscles by this constriction prevents that free play of movement which reacts so favorably on all the elements of an articulation, and that, too, at a time when the growing forces are at full tide, so that when the time arrives for standing and walking, the muscles are unequal to the firm support of the joint. The consequence of this feebleness is soon seen in the turning outward of the feet, throwing the strain on the internal lateral ligaments, which in turn become elongated through growth, and thus the defect becomes established, but the evil does not terminate here. The calcaneo-cuboid and the astragalo-scaphoid ligaments, losing the proper support of the tendon of the posterior tibial muscle, under the abnormal tension begin to yield and to the deformity of eversion is added that of "flat-foot." That the above is not a mere hypothetical explanation of the ankle defects I have many times verified by finding the threatening symptoms disappear after liberating the imprisoned muscles and subjecting the enfeebled parts to a judicious massage. Under no circumstances, as is too often the case, should instrumental apparatus be applied, unless in cases in which, from neglect, the deformity is thoroughly established and is progressive.

Take another deformity, that of bow-legs. On the earliest signs of the unsightly curve, the limb is too often trammelled with irons, and the growth of the muscles arrested, when it is well known that if manual force be systematically applied two or three times a day the limbs will gradually assume their typical form.

Again, in further illustration of our general text, take, as an example, a child who for one long or two short sessions, for six days of the week, sits over the study desk, compelled to assume a position in which, from the inclination of the body, the shoulders fall forward, the head being supported, most probably, on the elbows and hands. In such a posture, the great serratus and pectoralis major and minor muscles are in a state of relaxation, while the erector spinæ and trapezei muscles are in a state of tension. This change in the position of the shoulders gives the scapulæ over, without antagonism or resistance, to the action of the rhomboidei and the levatores angulæ muscles, which, acting conjointly, cause that projection of the lower angle of the shoulder-blades, which the older anatomists termed "scapulæ alatæ." To all this must be added the very important factor of four to six hours in the school-room, and two hours, at least, of home preparation for the following day's recitations, during which time the respiratory functions having been reduced to a minimum of activity, the muscles of the chest are comparatively passive and aëration of the blood tardy. Certainly no combination of conditions could be better devised for forming contracted chests and round shoulders. It is not long before the watchful eye of the mother detects the change in the figure of her child. She will probably discover this and take alarm, even when the pale face, the languid air, and the capricious appetite of the child cause no anxiety; and then comes the second act in the drama of physical deterioration, namely, a resort to shoulder braces and stays, in order to accomplish that which the muscles should be taught to do without restraint or incumbrance.

LATERAL CURVATURE.

While it is true that lateral curvature of the spine depends upon causes both central and peripheral, yet in no small number the deformity is clearly attributable to influences of a social nature. The young column, by reason of the non-union of the epiphysis and diaphyses, and the supple character of its ligaments, is extremely flexible. Whatever, therefore, destroys the muscular equipoise, however inconsiderable the force, if persistently repeated, changes the centre of gravity and develops primary and compensating curves. For six months in the year, any fine morning, groups of young children may be seen plodding along our streets with a miniature library of books suspended from one shoulder. To the already preponderating scale of the balance, add the additional factor, a probably badly arranged light, compelling these little *savants* to assume a lateral inclination of the body in order to obtain the necessary illumination of the subjects of the study, and you have all of the conditions necessary for perpetuating the lateral deformity. "Just as the twig is bent, the tree's inclined." As in the case of round shoulders, so here, in order to prop up the falling column, instrumental contrivances are immediately called into requisition. The body is encased in a formidable coat of mail, to be followed by muscular atrophy and permanent distortion of one of the otherwise most beautiful pieces of mechanism in the human frame. It is true that in most educational institutions for the young, provisions are made for physical culture, and these are in some measure antidotal to the evils complained of, but, in my judgment, do not at all compensate for that free unstudied romp in the open air, untrammelled by the hard and fast rules of calisthenics, so fascinating to the young child. Nor does the evil end here. While the forcing process, which is to stimulate the mental powers far beyond the real capacity of the immature and growing brain to receive, is in progress, another is inaugurated, which is to qualify, especially the female child, to acquit herself with distinction when the

time arrives for entering the great world of society, or, as Thomas Brown would style it, "for the frivolous work of polished idleness." The gait and carriage must be reduced to prescribed rules, the voice toned down to a drawl or trained to move like a mountain torrent. The muscular apparatus of the face must be taught to express, not the spontaneous and natural outflow of feeling which wells up unbidden from the magic chamber of the heart, but rather to produce an effect; and so this work of transformation goes on until it culminates in the full-blown society girl. Is it any wonder that, under such a scheme of education, conducted throughout by a studied disregard of both the physical and mental constitution, and exercising, as it does, such tremendous drafts on the nervous system, that the world is becoming filled with a class of flat-breasted, spindle-limbed young women, unfitted for the varied and responsible functions of womanhood; qualifications, too, which, under a different regimen, and directed into proper channels, would exert a most potential influence on all the great social and moral problems of the age?

While thus plainspoken on the frivolous methods of living, I do not wish to be understood as being unfriendly to the highest cultivation of the mental and physical powers, if conducted on lines in harmony with the organization, nor to any technique which may conduce to personal grace or elegance of manners, so that the manly or womanly personality of the individual be not sacrificed to the Moloch of sentiment and sham. Indeed, indifference to these things is inexcusable in either man or woman as not only lessening their influence in the world, but, in many respects, disqualifying them for the highest discharge of the duties of modern life. Valuable as may be the unpolished diamond, yet it is only after the wheel of the lapidary has worn away the dull incrustations that its true brilliancy is revealed and the gem is fitted to adorn the brow or the breast of beauty.

BODILY CONSTRICTION.

In the further discussion of my subject, I may next notice the evils of visceral displacement and pressure consequent on abdominal constriction. Whatever may be said in regard to Greek and Roman life, the infinite care which these people displayed in developing and maintaining the very best type of the human form, is worthy of admiration. The Ionic "cheton," spoken of by Attic writers, and so often represented in the bronzes of Herculaneum, while it would not exactly satisfy the modern idea of dress, was, at least, free from the charge of interfering with the contour of the human figure. The painters and sculptors of those classic days were reverent students of nature. Their delineations were true to life. Their works furnish us with no hour-glass contractions of the human body. The constriction of the waist operates injuriously on both the supra- and infra- diaphragmatic organs. Any force acting on the base of the thorax and preventing the expansion of its walls, concentrates the function of respiration, which should be general on the apices of the lungs; and hence, under these circumstances, the movements of breathing are, for the most part, confined to the summit of the chest. As the initial seat of tuberculosis is located at the upper part of the lungs, may not the inordinate work entailed on these parts by constriction, have some part in hastening such deposits in the female when the predisposition exists? It is this forcing inward of the costal border of the thorax which causes the groove on the anterior surface of the liver, so familiar to anatomists. This pressure cannot fail to interfere with the descent of the diaphragm and with the functions of the gall-bladder and duodenum, and exercises no small degree of influence in favoring the formation of biliary calculi, females being peculiarly prone to such concretions. The extent to which the liver may be damaged by extreme constriction of the waist, is well illustrated by a case quite recently reported in the *British Medical Journal*, in which a considerable portion of the left lobe of the liver had been separated from the right, the two being connected only by a band of connective tissue, which enabled the operator to remove the detached mass without difficulty.

The evil effects of this constriction on the viscera of the abdomen and pelvis is most strikingly witnessed in the embarrassed portal circulation, in the different uterine displacements, elongation of ligaments, displaced ovaries, tubal inflammations, hemorrhoids, hernia and other morbid conditions which either prevent or disqualify the woman for the exercise of those functions of maternity, and which, in addition, through reflex influences, entail a host of functional disorders reaching into every avenue of the body, and invading both the mental and moral constitution of the victim. So prolific have these infirmities become that a new department of surgery has been organized for their special management. To what, if not to social causes, can these morbid changes of structure in the pelvic organs, especially of the uterus and its appendages, be attributed? Why should laceration of the cervix uteri be so common an accident? Labor is a natural process, and ought not, under ordinary circumstances, to be attended by lesion of uterine tissue. I can conceive of no agency more likely to induce that muscular degeneration which predisposes to this accident, than the modes and methods of modern living, especially among the inhabitants of great cities. In the expression "modern living," much is embraced. It includes culinary pharmacy, overfeeding and drinking, insufficient or injudicious exercise, improperly heated apartments and a disproportion between the hours of exercise and rest.

Contrast, if you will, the muscles of the hardy, country housewife, who, bearing the cares and responsibilities of a dependent family, bustles about the live-long day indoors and out-of-doors, eats with a relish her plain and simple fare, repairs at reasonable hours to bed, and sleeps the sleep of the beloved, undisturbed by dyspeptic night-mares, and rising with the golden dawn, resumes the round of domestic toil with a clear head and supple limbs; I say, contrast this type of a class with that of another, the woman born to luxury and ease whose capricious and exacting taste taxes the art of the professional caterer, who drags out the morning hours toying with some crazy piece of embroidery or trashy novel, lunches at one, rides out in the afternoon for an airing of two or three hours, returns to a dinner of five or six courses at seven, completes the evening at the opera, the theatre or the assembly, and coming home after midnight, crawls into bed weary and exhausted in body and mind, only to rise with the best hours of the morning gone, for another day of aimless routine life.

Can it be doubted that in the first case, with a digestion unimpaired, with the products of textural change consumed by functional activity and eliminated through the proper emunctories, the woman should possess a vital resistance and a tone of tissue altogether superior to that of the other, whose habits of living must necessarily favor their faulty metamorphosis?

To these same agencies must be attributed that brood of nervous and hysterical evils, for the relief of which the gynecologist too often, I fear, invades the domain of womanhood, around which her whole sexual nature revolves, and which, save only in the direst extremity, should be sacred against all operative intrusion.

LATE MARRIAGES

constitute another social evil, the penal inflictions of which involve both sexes alike. Pride and luxury determine long engagements or deferred proposals. Marriage, it is believed, necessarily involves an establishment, a display, a retinue of servitors. The good old notion of two souls being united in wedlock for the purpose of being mutual helpmates and patiently, together, working up from modest beginnings to affluence, seems to be entirely at variance with the modern idea of this relation. In the meantime the young man is betrayed into unlawful sources of gratification, alike destructive to moral and physical purity, the pollution of which incontinence is often subsequently communicated to and perpetuated in wife and offspring. I would not dare to say how many cases of this nature have been entrusted to my professional confidence, though I doubt not my experience does not differ from that of many of my professional brethren whom I address. It is under such circumstances that many of those infective inflammations of the Fallopian tubes, as salpingitis and pyosalpinx, arise, which entail the most serious deterioration of health.

THE FOOT AND THE SHOE.

It may be thought by some persons that the subject of the foot and the shoe is not of sufficient dignity to appear in a public address. The Romans and the Greeks thought differently. The literature of both people is full of references to the shoe worn by both sexes. So important, indeed, are the feet to the well-being of the body that whatever impairs their usefulness, either for support or locomotion, becomes a positive calamity. Nothing can be more unlike the human foot than the modern shoe. Let any one leave the impress of his or her foot in the wet sand of the seashore, and then place alongside of the imprint a fashionable shoe; that the two were ever intended for each other would scarcely strike a child of the forests. The North American Indian entertains juster notions about clothing this portion of his body than does the civilized denizen of New York or Philadelphia. Compare the moccasin with the shoe of the city belle. Compare the *σανδαλον* or the *περσικαι* of Pollux and of Aristophanes with the same, and we shall see that the savage and the polished Greek alike understood the value of sound feet in the race of life. It is the imperfect adaptation of the shoe to the foot which constitutes the fruitful source of tired ankles, corns, bunions, over-lapping of the toes, and ingrowing nails. Some idea may be formed of the magnitude of the evil from the fact that of eight hundred patients under the care of a prominent chiropodist of Philadelphia, the great majority of the defects were entirely attributable to the high heels and the contracted toes of the shoes. Especially do these physical encumbrances arising from a blind submission to social laws operate disadvantageously to our fair women at the beginning of the new dispensation requiring both muscles and brains, and when her friends propose to sweep away all the old traditions and claim for her the earth with all its masculine employments.

GAMES AND AMUSEMENTS

which in themselves are proper and praiseworthy, too often become developed into a craze, working both moral and physical mischief. Professor Leuf, himself a professional in the national game of base-ball, has described the "pitcher's arm" a condition of over-taxed function, and one in which all the anatomical elements of the upper arm are involved. There is also the tennis arm, and the swollen supersensitive prostate of the bicyclist, both due to the abuse of popular amusements.

DEFECTS OF REFRACTION,

or visual defects constitute another class of affections fairly attributable, in many instances, to social influences. The number of children which may be seen in our streets any day wearing glasses, has become a matter of common observation. It is far from being probable that the most exquisite piece of mechanism, the human eye, came from the Divine Artificer, imperfect. Because eyes are young, it does not follow that they are thereby better fitted to sustain prolonged use. Just the reverse is true, and it is high time that parents and educators begin to recognize the fact. The power of the eyes for continued use, like that of other organs of the body, is one of gradation. It moves in the general procession and strengthens with the advance in life, until development has attained it zenith. Not only so, but the eye being a part of the body it must suffer or rejoice through the operation of general causes. A bone may have its normal curves changed, a tendon may slip from its appointed groove, or a bloodvessel be destroyed and yet very little disability be realized, but the eye is made up of such extremely delicate structures, and acts according to fixed physical laws, that not the slighest alteration of a curve, or the mobility or density of its media, can occur without great vitiation of function. To exact, therefore, long hours of study from children of a tender age, involves a degree of functional strain altogether disproportionate to the structural resources of the organ and, by disturbing the orderly processes of nutrition, gives rise to hypermetropia, asthenopia, astigmatism and its companion, headache. That the picture is not too highly colored, or the sensation overstrained, we have only to contrast the children born and reared in those portions of the country not too much dominated by the methods of modern civilization, and who rarely demand a resort to artificial aids to provide for abnormalities of vision. The only remedy for the evil where infantile scholarship is insisted upon, is the Kindergarten, or object system, the most natural and effective plan of impressing the young mind.

RENAL DISEASE.

Is there any reasonable explanation drawn from sources of a social nature for the great frequency of these renal disorders, which come more particularly under the care of the surgeon, as crystalline deposits and calculi? For

maintaining the general health at the highest physiological standard, a proper quality of food and the proper disposal of tissue waste are essential conditions. Along with wealth and luxury come the abuses of the table. Americans are fast becoming a nation of dyspeptics. Our country is so rich in the products of every zone, that nowhere else in the world can you find such a variety of foods, animal and vegetable. These foods manipulated in a thousand ways, by the subtle art of the professional cook, almost necessarily betray one into excess, and also create the desire for wine and other alcoholic beverages to aid the stomach in disposing of its plethoric supply.

In great cities, which furnish relatively the largest number of cases of renal disease, affecting preëminently the mercantile and sedentary classes, we find just the conditions favorable to their development. The competitions of trade keep the merchant always at white heat. Time is golden, and the street car and other means of conveyance annihilate distance, and the ride is substituted for the needful walk. A hasty lunch at the most convenient restaurant satisfies the inner man until the business of the day is closed, when, weary and worn, he is driven to his home to partake of a course dinner, the balance of the evening to be spent on the lounge with the evening paper, or the latest periodical. To the literary man the fascinations of the study and the library charm him away, with their siren voices, from the fields and the highways, until bodily exercise grows distasteful and repugnant. In the meantime there has been no provision made for the waste or tissue metamorphoses of the body through that great agency, exercise. These accumulate in the blood, the internal eliminating organs, of which the kidneys are chief, are overtaxed and then follow the evils of malassimilation and of excretion, in the form of urates and oxalates, often resulting in the formation of calculi.

In conclusion, may we ever hope for a time when the race will realize that these bodies which we wear, which God has so highly honored by his own incarnation, are sacred temples to be kept in harmony with recognized physical laws, and not to be made instruments of mere animal gratification.

ORIGINAL ARTICLES.

A CASE OF CÆSAREAN SECTION.[1]

BY HOWARD A. KELLY, M.D.,

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IT has been my good fortune to operate successfully upon two cases of Cæsarean section in this city, on April 17th and May 30th of this year, the indications being, respectively, absolute and relative.

While, in the case of the absolute indication, no possible discussion can arise as to the advisability of operation, especially since the publication by Dr. R. P. Harris, of the wonderful results following the introduction of the accurate method of suturing introduced by Sänger; as to the relative indication there is still abundant room for careful discussion, and its consideration would be beyond the scope of the present paper. The writer hopes, however, at no distant day, to present the second case as a basis of a full consideration of this very important topic. The great work of Dr. F. Caruso, upon Cæsarean section, in preparation in the Italian language, will be of the utmost value in settling this question within its proper limits.

CASE. *History.*—Mrs. J., a patient of Dr. A. B. Ireland, a slight, delicate American, four feet six inches in height, twenty-five years old, was at full term on April 3d, when she was taken with labor pains; she went on some days with irregular pains, until they finally became so strong that she sent for her physician, Dr. Ireland, on the 8th, who stayed with her from nine o'clock in the morning until four in the afternoon, returning again in the evening, feeling sure that, from the character of the pains, her strong straining, bearing-down efforts, the termination could not be far distant. On the day following this visit she had one marked and two slight epileptic seizures. From the date of this first visit she remained in her bed until delivered by Cæsarean section. She suffered continuously from distressing, bearing-down sensations, with remissions of hard labor pains, resembling those of the later stages of labor. The midwife, who cared for her under Dr. Ireland's direction, gave an excellent circumstantial account of her condition throughout this period, stating that in her fifty-one years of experience she had never seen a woman in such strong labor pains. In spite of the time she had been in labor and the efforts she had made, the os remained very small, and the cervix rigid. Dr. Ireland made careful, but unsuccessful attempts to effect a manual dilatation. The waters ruptured on the tenth day.

On Monday evening, the thirteenth day, at eight o'clock, all pains ceased, suddenly returning on Tuesday, when her expression was one of marked collapse, and she was too weak to give expression to her distress. Dr. Ireland called Dr. A. A. Starck in consultation. They decided that Cæsarean section was the only possible means of rescue, and sent for me with an accurate statement of her condition. I had the good fortune to have at my house at the time Dr. Robert P. Harris, and Prof. Gardner, of Montreal, who accompanied me.

Dr. Robb and the matron of my hospital, Miss Little, assisted me in the operation. The matron made all necessary preparations in a few minutes, and no time was lost in reaching the patient, who was found profoundly collapsed, with a pulse of 142, a tympanitic abdomen, the uterus prominently vaulting the anterior wall. The pelvic measurements were: Sp. i. 19 cm., cr. i. 25 cm., d. B. 15.

The tissues within the pelvis were found to be œdematous, hard, and hot, and it was impossible to recognize special structures, with the exception of the hard, infiltrated cervix; the pelvis being literally choked with the hard, unyielding mass, above which lay the child's head, which it was impossible to reach. The rapid, feeble tones of the child's

[1] Read at the meeting of the Philadelphia Obstetrical Society, September 6, 1888.

heart showed that it was still living. The patient was examined carefully by both Doctors Harris and Gardner, who unhesitatingly concurred with the views of Drs. Ireland and Starck. The decision was: Cæsarean section indicated, prognosis unfavorable. The patient was at once etherized. The operation was conducted with thoroughly antiseptic precautions, with the exception of disinfection of the room and the neighborhood—the patient living in a frame house in a densely crowded section of the city. Minuter details from the etherization to the final dressing will not be dwelt upon.

Operation.—The time occupied from the beginning of the operation to the last suture in the abdominal wall was thirty-five minutes. After shaving, washing, and thoroughly disinfecting the abdominal wall with a bichloride solution, the field of operation was hemmed in on all sides by cloths wrung out of a five-pro mille solution. The instruments and hands of the operators, and the parts of the patient involved in operating, came in contact with these cloths, and with nothing else in the room. An incision seven inches in length, extending above and below the umbilicus, was made in the median line, and the uterus delivered through it; a rubber ligature was thrown around the cervix provisionally, and a large cloth laid behind the uterus, covering the incision and retaining the intestines. An incision was now made in the uterus near the fundus extending down toward the cervix, which cut across the placenta at its centre (*plac. præv. centr. Cæsar*). Great care was taken not to cut the placental vessels. The placenta was separated readily, and the nearest presenting part caught, proving to be the leg of the child lying in the first position. The child was delivered, membranes and all up to the head, which was firmly wedged at the superior strait, requiring almost a minute to free it, accomplished by inserting the fingers in the mouth and making a pair of forceps of the hands.

Prof. Gardner took possession of the child, which he resuscitated with difficulty to a condition of feeble vitality after persevering in his exertions for half an hour, when it gave its first cry. The placenta and decidua came away with the child. The appearance of the uterus was healthy. The uterine wound was closed by twelve deep and twelve superficial silk sutures, introduced as prescribed by Sänger, of Leipzig. The cloth and the constriction tube, which lay loosely around the neck of the uterus, were removed, and the contracted uterus dropped into the abdominal cavity, which was clean and free from blood. The external incision was closed by seventeen deep and twelve superficial sutures, the wound dressed, and the patient returned to bed.

Up to this time the case is an interesting one on account of the peculiarity of the indication, being one which might arise in a normal pelvis, labor being obstructed by abnormality in the fœtus; the indication here was similar in character to that presented by tumors obstructing the pelvis. Consideration for the life of the child, after such prolonged and severe labor, was not a factor in the decision. Had the child been dead it could have been delivered in no other way.

The after-history presents some points of remarkable interest; on the day following the operation she suffered much from tympany, nausea and vomiting—a continuation of her previous condition. Her pulse was 144, and the temperature 99¾°. Upon taking Epsom salts in concentrated solution, followed by the citrate of magnesia, she had a very large movement, filling a bed-pan. The next morning, pulse was 88 and the temperature normal, where it stayed until the tissues in the vagina began to break down. She took nourishment well from the first, improved at once in appearance, and passed urine voluntarily from the second day up to the secondary period of disturbance from the œdematous pelvic tissues. The child, which was small and wizened, became jaundiced on the third day, dying at the end of a week.

She complained of much pain on the 21st, when all the stitches in the abdominal wall were removed, letting out some dark, grumous pus just below the navel, giving immediate relief. I found, also, that in the pocket in which the child's head had lain, above the undilated portion of the cervix, and below the contraction ring—that is, in the upper part of the lower uterine segment, there was a large accumulation of clots. These I carefully removed, keeping the whole tract clean by repeated douches. The abdominal incision broke down in its upper part, extending downward, and showed at one point the anterior wall of the uterus adherent to the abdominal wall. The infection which, starting in the inflamed vaginal tissues, extended upward, developed for two days a condition of physometra, which disappeared as soon as the opening into the uterus was visible per abdomen, when the whole tract was irrigated from above downward. The infravaginal cervix sloughed away, a large mass crackling with air vesicles, and, with the rapid discharge of all débris, she passed through a period of great danger from septic absorption, with but the slightest symptoms of discomfort.

The note of the 27th, ten days after the operation, states, "patient looks and feels perfectly well, has a bright, happy expression. Pulse 72, temperature normal. Natural movement. Slight, thin discharge from abdominal wound, which is filling up with abundant healthy granulations." Four days later she had a chill, followed by a mild phlebitis, from which she recovered rapidly. I have not seen her since my return from Europe, but Dr. Harris tells me she is well, only needing that the narrow cicatricial cervix be dilated, to allow her to menstruate per vaginam instead of per abdomen.

I am indebted to Dr. Harris for some valuable statistical information, which I shall present in a more formal paper at a future meeting. This is the ninth case of Cæsarean section with preservation of the uterus, performed in Philadelphia. The last successful case was that of Prof. Gibson, of the University of Pennsylvania, fifty-one years ago. The cases operated upon from that time to the present were, almost without exception, received in a condition in the highest degree unsatisfactory to the operator.

In outline the following features appear remark

able. The length of time the patient was in labor—being fourteen days. The pulse at the time of the operation was 142. The agglutination of the uterus and anterior abdominal wall, as observed in Prof. Gibson's and other cases, which in this case prevented general infection of the peritoneum. The remarkable pocket for discharge formed below the contraction ring and above the undilated portio vaginalis.

An important factor, I think, in determining her recovery was that, without undue haste, by quick work, and having all necessities within easy reach, I was able to complete the operation in thirty-five minutes. I have omitted most of the details which are usual in these cases, but cannot close without a tribute to the care and faithfulness of the physicians who visited her during her convalescence, doing often the work belonging to a nurse. Those who have anxiously watched bad surgical cases, sacrificing every personal inclination and convenience while the patient's recovery was a question, will appreciate how much is implied.

MEDICAL PROGRESS.

Cocaine for Pruritus.—Conceiving the iodoform dermatitis mostly the result of the scratching induced by itching—that is, that iodoform only gives rise to itching and inflammation of a moderate degree, GEYER (*Pest. Med. Chir. Pr.*, No. 31) has successfully used cocaine in this affection. As soon as the irritation is perceived the part is brushed two or three times with a ten to fifteen per cent. solution of hydrochlorate of cocaine. With the cessation of the itching the dermatitis also disappeared—that is, it did not occur. In case the dermatitis had attained to some degree, so that vesicles already existed, cocaine checked the itching and the progress of the inflammation, but it failed to hasten the retrogression of the vesicles. Geyer has also with success used cocaine in other itching, cutaneous affections; for instance, in the case of a woman, in whom, at the menstrual period, a circumscribed, urticaria-like, intensely irritating eruption appeared at various parts, from its severity disturbing sleep. The itching was diminished by applications of cocaine, and subsequently, upon timely application, entirely relieved. Finally, Geyer applies cocaine for the itching of urticaria.—*Wien. medizin. Presse*, No. 34, 1888.

Salicylic Acid in Metrorrhagia.—FELICI (*Gazetta degli Ospitali*) reports two instances of surprising results from the use of salicylic acid in metrorrhagia. In the one, the hemorrhage was due to carcinoma and resisted all treatment. By means of a carbolated tampon, moistened with a solution of salicylic acid, Felici was enabled to check the bleeding in a few minutes. The second case was that of a woman, who was taken with such severe hemorrhage during the menopause that collapse occurred. After the ordinary remedies had been fruitlessly applied, Felici tamponed the uterine cavity with a cotton plug, moistened with a solution of salicylic acid, whereupon the bleeding permanently ceased.—*Wiener medizin. Presse*, No. 34, 1888.

Uterine Tympanites relieved by Creolin Irrigation.—BRAUN (*Wiener medizin. Presse*, No. 34, 1888) reports that in all cases in which creolin was used at the Cracow clinic for gynecology and obstetrics the result was entirely satisfactory. Naturally creolin was chosen in preference to corrosive sublimate and carbolic acid in such cases in which danger of intoxication existed. The results were admirable in two cases of uterine tympanites followed upon protracted labor. The first case was that of a multipara, in which the liquor amnii had been evacuated five days before. Tympanitic resonance was manifested over the uterus. After delivery with the forceps, a foul-smelling, gaseous, dirty fluid escaped. Notwithstanding the existing fever, after irrigating the uterine cavity with a two per cent. solution of creolin, three times daily, the trouble was relieved, and in fifteen days the patient was discharged. In the second case there was a shoulder presentation, labor lasting five days, the fœtus was putrid, the temperature 104°, pulse 130. After applying irrigation as already mentioned the septic inflammation of the uterine mucous membrane disappeared.

For Migraine.—

R.—Antipyrine . . . . . ʒj.
Old rum . . . . . ʒv.
Syrupi limonis . . . . . ʒvij.
Aquæ . . . . . ʒijss.—M.
Sig.—ʒij, as required.

—*L'Union Médicale*, August 25, 1888.

Dyspepsia of Infants.—

Acidi hydrochloric. diluti . . ♏xv.
Syrupi aurantii . . . . ʒjss.
Tincturæ aurantii . . . . ʒj.
Infusi cascarillæ . . . . ʒjss.—M.
Sig.—Teaspoonful twice daily.

—*Journal de Médecine de Paris.*

Treatment of Burns.—WENDE speaks very highly of a dressing for burns, composed of cocaine, four per cent., and lanolin. This mixture should be freshly prepared and the cocaine perfectly pure. It assuages pain immediately and the healing takes place rapidly.—*Journal de Med. de Paris.*

Untoward Action of Sulphonal.—The following case, reported by DR. SCHUREY, in the *Therapeutische Monatshefte* for July, is interesting, as illustrating the untoward action of sulphonal. A patient of sixty-one years, with arterio-sclerosis, suffered with attacks of angina pectoris and insomnia. By the use of amyl nitrite the attacks were aborted and the intervals between them lengthened. The sleeplessness was successfully overcome by the use of amylene hydrate. The patient, after a time, unwilling longer to take the latter, on account of its disagreeable taste, sulphonal was prescribed in doses of thirty grains. The result was surprising. Soon after the ingestion of the drug the attacks of angina pectoris recurred with great frequency; a few minutes after one attack was checked by amyl nitrite another began. This lasted throughout the night. There was no real sleep, but two hours after the administration of the remedy a sort of half slumber, interrupted by frequent attacks, was had. For the next two days the attacks continued with increased violence and frequency. The author cautions against the administration of sulphonal in cases of arterio-sclerosis.—*Wiener medizin. Presse*, July 29, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's address, No. 1004 Walnut St., Philadelphia.

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PHILADELPHIA.

SATURDAY, SEPTEMBER 22, 1888.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Two years ago the American Surgical Association suggested to its kindred special societies the organization of a Congress of American Physicians and Surgeons. These societies cover all the principal departments of medicine, and their membership, which is elective, includes the best known workers in the various specialties. The idea of their coördination was a happy one, and the plan promptly met with a hearty approval. This week has witnessed the realization of the project in the Joint Meeting of the American Surgical Association, the American Association of Genito-Urinary Surgeons, the American Laryngological Association, the American Climatological Association, the Association of American Physicians, the American Otological Society, the American Ophthalmological Society, the American Neurological Association, the American Dermatological Association, the American Physiological Society, the American Orthopedic Association and the American Gynecological Society.

The twelve special societies met in Congress, and also, preserving their autonomy, have at the same time held their usual annual meetings, as it were as sections of the Congress. The result was all that had been hoped for. The value of the scientific work done by these special societies for years past is well known, and the same high standard was preserved in the proceedings of the Congress, as will be seen on reference to our report of the proceedings.

This initial session has shown that the Congress is held purely in the interests of medical science and its advancement, and that the plan of organization has been so wisely devised that politics, the blight of so many fair projects, is effectually excluded. No executive business, not even the election of officers, is transacted by the Congress. It meets solely to listen to and to discuss scientific papers. Its members are the active clinicians, authors, and teachers of to-day, and the joint discussion by them of the practical problems in medicine and surgery which are pressing upon our attention at present, cannot fail to contribute materially to their solution and to the advancement of our knowlege.

The plan of organization met with cordial approval, and the selection of Dr. Billings as President was regarded as a just tribute to a distinguished member of the profession and a merited recognition of his laborious and unselfish devotion to the cause of medical science and literature.

The social phase of the Congress was a feature which is not without its importance. It served to bring into pleasant personal relationship men in the different departments of medicine, who were well known to one another by reputation, but who, perhaps, otherwise might never have been brought together; and they will hereafter have the advantage of the greatly increased interest which always attaches to the researches, writings, or teachings of those with whom one is personally acquainted. Moreover, in our daily reading, the personal equation is a not unimportant factor in enabling us to estimate correctly the value of scientific contributions. The social arrangements at Washington were, in every respect, admirable. The general dinner on Monday evening, and the receptions on the other evenings, gave the members the fullest opportunity for mutual, social intercourse.

The Congress, in its membership, constituted one of the most notable medical gatherings ever assembled in America. Among its participants were a very large proportion of those who are everywhere recognized as guiding our medical thought and advancing the reputation of American medicine. The brilliancy of the gathering, too, was heightened by the presence and participation in the proceedings of a number of eminent *confrères* from across the water.

The Congress will meet triennially at Washington, and the second session will be held in the autumn of 1891.

THE PRESIDENT'S ADDRESS.

FOR his address, as President of the Congress of American Physicians and Surgeons, DR. BILLINGS chose a novel and interesting subject, one which, so far as we know, has not before been dealt with in so exhaustive a manner. Naturally enough, as Curator of the Army Medical Museum, which has so recently been placed in suitable quarters, he felt the occasion appropriate to tell the story of its origin and growth, to explain its wants, and to say something upon the advantages of collections to medical schools and to the profession.

When a physician in a strange city wishes to estimate the scientific standard of its profession, let him visit its medical libraries and museums. They are the indices of progress and of work, as infallible as crowded docks and busy streets are of commercial enterprise. It means that there are men in that town, "whose labor and thought have not been confined to their own interests," but who have been zealous in those things which, after all, make a profession great. And visitors to this country when they inspect the beautiful collection at Washington, see a monument not unworthy of the Army Medical Department, and of the profession at large. It is a matter of pride and congratulation that within the short space of twenty-six years the museum has reached such proportions that it now ranks as one of the eight largest in the world. And let us not forget in these congratulations the little Circular No. 2, issued on May 21, 1862, by Surgeon-General W. A. Hammond, to whom the great honor belongs of starting the work.

The elaborate review of the museums of this country and of Europe is not only of value in itself as a record of unusual interest, but it will arouse, we trust, our medical schools to a proper sense of the value of collections as a means of instruction. With the exception of half a dozen of the larger colleges, very few of the teaching bodies make adequate provision for securing and preserving specimens. One great difficulty is the expense, but harder still is it to obtain men with the necessary enthusiasm. The Warrens, Wister and Horner, Mütter and James R. Wood, whose names are attached to some of the most important medical museums of the country, were great teachers, practical men, who knew the value of specimens in illustrating lectures. Would that they had more imitators in the present day and generation.

The capabilities and needs of the collection at Washington are now plainly before the profession. Evidently it is the desire of the Surgeon-General and Dr. Billings to have such an exhibition at Washington, that a physician from any part of the country, visiting the capital, can have an opportunity of seeing a complete array of physiological, anatomical, surgical, and other apparatus and specimens. Everything, for example, from a plethysmograph to a percuteur, and from an elaborate dissection of the solar plexus to a well-displayed series of anomalies of the epigastric artery. In time, we have no doubt that the museum will be in this way as much used as the library as a means of education. Meanwhile, every physician throughout the country is called upon to do his share in the work and to aid in making the collection such as a great profession and a great nation have a right to demand.

THE YELLOW FEVER EPIDEMIC.

THIRTY years ago the opinion prevailed in several of our southern seaports that yellow fever was a necessary evil, an endemic disease due to climatic causes, in connection, perhaps, with local insanitary conditions, and, consequently, that it was not to be excluded by any quarantine restrictions. Now we know better and have ample data to demonstrate that this pestilential disease is nowhere endemic on our shores. Having this knowledge, the question of responsibility for the epidemic prevalence of the disease at once presents itself when we see repeated at Jacksonville in 1888 the heartrending events which marked the progress of this disease in 1878 in the States of Alabama, Louisiana, Mississippi, and Tennessee.

History repeats itself in these yellow fever epidemics; the reluctance to admit that the enemy has obtained a foothold; the concealment of early cases and the attempt to call them by some other name; the vain hope that the disease will not extend—that there will not be much of a shower after all; the mistaken reliance upon not being afraid, or upon the burning of tar barrels and the firing of cannon; the assertion that the early victims died from their own fault—from fear, imprudence, or something else than the malignant poison which already infects the atmosphere; the sudden terror and "stampede" when the nature of the disease is generally recognized and a few prominent citizens have become its victims; the attempt to effect a general exodus of the population when other communities are terrified and when sanitary cordons and shotgun quarantines

are the order of the day; all this is an old story to those who are familiar with the history of yellow fever epidemics in the United States.

But we had hoped that it was so old and so familiar that there would be no repetition of the sad, disgraceful spectacle. For there can be no doubt that, in the present state of knowledge, such epidemics are inexcusable. Some one is responsible for them. Or, rather, the responsibility rests somewhere, but under our present system, or want of system, of sanitary administration it is often difficult to say just where.

An epidemic on our soil requires the transportation of an exotic germ to a favorable location, and, although we may not know the precise form or the specific characters of this germ, we do know that in a vast majority of the cases new infected centres are established by those who fall sick of the disease in localities more or less distant from the place where they received the morbific agent into their system.

The indications for sanitary prophylaxis are, therefore, apparent: the exclusion of the exotic germ; isolation of the sick; disinfection of excreta and of all articles which have been in contact with the sick, and of their apartments and immediate surroundings; sanitary police of infected or exposed localities. But, to accomplish the end in view, these measures must be carried out promptly and intelligently in accordance with the knowledge which has been acquired as a result of dear-bought experience in previous epidemics, and of the labors of those who have determined the value of disinfectants by scientific methods.

Has this been done in Florida? Were the proper steps taken to exclude the exotic germ in the first instance, to isolate the sick and disinfect excreta, clothing, etc., when it was known that the disease had obtained a foothold at Tampa, Plant City, and, finally, at Jacksonville? Who is responsible for the failure to stamp out the disease in the early spring, when it was well known that it had survived the winter on the soil of Florida and, with the recurrence of warm weather, was certain to become epidemic, if any reliance could be placed upon previous experience?

Wherever the disease becomes established, the well-known principle of depopulation of the infected locality should be promptly and efficiently carried out. To attempt to shut in the population of infected localities by sanitary cordons and shotgun quarantines is a practice which is generally condemned by enlightened sanitarians, and its uselessness was affirmed by the International Sanitary Conference of Rome (1885), in a proposition which was adopted with but a single dissenting voice.

THE Association of American Anatomists was organized in Washington last Monday, and the following officers were elected: *President*, Dr. Joseph Leidy, of Philadelphia. *Vice-Presidents:* Drs. Frank Baker, of Washington; F. D. Weisse, of New York. *Secretary* and *Treasurer*, Dr. A. H. P. Leuf, of Philadelphia. *Executive Committee:* Drs. Harrison Allen, of Philadelphia; Burt G. Wilder, of Ithaca, N. Y., and A. C. Bernays, of St. Louis.

The American Pediatric Society was likewise organized on the next day by the election of the following officers: *President*, Dr. A. Jacobi, of New York; *Vice-Presidents:* Drs. A. V. Meigs, of Philadelphia; F. Forcheimer, of Cincinnati. *Secretary*, Dr. W. B. Booker, of Baltimore. *Recorder*, Dr. William Perry Watson, of Jersey City. *Council:* Drs. T. L. Latimer, of Baltimore; J. M. Keating, of Philadelphia; J. N. Love, of St. Louis; J. H. Ripley, of New York; S. C. Busey, of Washington; C. P. Putnam, of Boston, and A. D. Blackadar, of Montreal. A constitution was adopted, and the meeting adjourned.

PROF. VON ESMARCH, of Kiel, who came to this country to attend the Congress of American Physicians and Surgeons, will lecture at the University of Pennsylvania this Saturday, at 11 o'clock, and at 12.30 will operate in Prof. Gross's Clinic, at the Jefferson Medical College.

M. DUJARDIN-BEAUMETZ has been sent by the French Government on a mission to Russia, to study its hospitals and methods of medical instruction, and M. Fremy to the United States to study the hospital arrangements for the treatment of tuberculosis.

AT the cemetery at Zurich there is being erected a crematory, the dedication of which will take place in the early fall. On both sides of the main apartment containing the furnace will be constructed niches for urns.

THE Accademia medico-fisica fiorentina has offered a prize of five hundred francs ($100) for the best work upon the surgery of the brain, spinal cord, and contiguous structures. The essay must be written in Italian, French or Latin.

SOCIETY PROCEEDINGS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

First Triennial Session
Held at Washington, September 18, 19 and 20, 1888.

(Specially reported for The Medical News.)

Tuesday Morning, September 18th.

MEETING FOR ORGANIZATION.

Dr. Pepper, of Philadelphia, the Chairman of the Executive Committee, called the Congress to order at 1 P.M. and spoke as follows:

On behalf of the Executive Committee I have the honor to announce to you, the members of the various special Associations composing the Congress of American Physicians and Surgeons, the manner in which we have discharged the responsible duty entrusted to us.

The present meeting is the result of prolonged deliberations. The development of one special society after another showed the irresistible tendency of the recent progress of medical science. The deep interest which attaches to the meetings of these separate bodies suggested naturally the thought of a conjoint meeting, which would bring together the active workers in allied fields. This thought began to take definite shape as much as four years ago, before the attention of the medical profession became occupied with the preparations for the meeting of the International Medical Congress, which occurred in this city last year. But all action was deferred, in order that there should not be even the semblance of interference with that important meeting. The delay has not been injurious. It has rendered more than ever conspicuous the actual need of an organization to secure the reunion, at stated intervals, of the more active teachers and writers and workers in the leading branches of medical science. Such reunions must be at a locality to which it will be possible to draw such men from all quarters.

In order to produce the best scientific results, it is essential that the members in attendance shall be reasonably limited, and that, as far as possible, the same men shall attend successive meetings. A continuity of intellectual life and activity is thus secured, which increases greatly the benefits derived from these meetings. A large proportion of those interested in the development of such an organization are, as I am myself, warmly attached to the American Medical Association, and determined to exert their influence to maintain and promote the success of this great national organization. All are no less warmly interested in the prosperity of the various special societies to which they severally belong. Your Executive Committee found little difficulty, however, in deciding upon a plan which would avoid even the least interference with the American Medical Association, while, at the same time, it avoided any encroachment upon the independence and autonomy of the special Societies. It is unnecessary to dwell upon the special points which have been embodied in the by-laws which will be immediately submitted to you.

Your committee ventures to hope that these provisions, which are strictly in accord with the terms of the resolutions under which they were appointed, will meet the unanimous approval of the Congress. We have recommended that the sessions shall be triennial, thus leaving to each participating body two intervening independent meetings, at such time and place as may be chosen. We have jealously guarded against the admission of any parliamentary business into the work of the Congress, the functions of which are designed to be absolutely and exclusively scientific. Thus, and thus only, can the sessions of this body be lifted up into and maintained in that high and cool air of learned discourse which best permits the diffusion of truth and the promotion of science. We have no less jealously guarded the independent sovereignty of each participating society. To all their full rights are preserved; to all equal privileges are accorded; upon all the burden of expense, which should always be but a light one, has been laid in equitable distribution. The successive meetings of the Congress will be held in this beautiful city, which every year becomes more accessible, more attractive, and more precious to every citizen of the republic. Nor could we fail to make acknowledgment of the great material advantages we shall enjoy in these meetings here, through the liberal and enlightened policy which places freely at our disposal the admirable facilities of the Medical Department of the Government.

Here, too, your Executive Committee would gladly acknowledge, we have found colleagues in the members of the Committee of Arrangements, to whom, and especially to whose chairman, Dr. S. C. Busey, we desire to return cordial thanks for a zealous and harmonious cooperation which has contributed in very large proportion to the successful inauguration of this new organization.

And lastly, your Executive Committee would report that in the discharge of one of the most important of our duties we have reached the conclusion that the selection of the president of each Congress shall be entrusted to the Executive Committee then in office. Thus will the choice of the most worthy and most representative men of the whole country be insured at the hands of a truly representative body, specially selected by their various societies for their ability and judgment.

The powers you are asked to confide to future executive committees are large, but they will be reposed in safe hands. Each society participating will be stimulated to continuous and lofty effort. Membership in any of these bodies will come to be regarded as more and more an honor, and in time the scientific qualifications of candidates will be more and more strictly scrutinized. Can there be any doubt that if the spirit which has led to the formation of this Congress be maintained and cherished, this new organization will exert a powerful and beneficent influence on the future of medical science?

It remains then only to add that in exerting the privilege of selecting a president for this first Congress of American Physicians and Surgeons, your Executive Committee feel they have been guided to the choice of a man whose admirable personal character, whose high attainments, and whose illustrious services in the cause of literature, of science, and of the entire medical profession, mark him as entitled to this great honor and distinction. It gives me, therefore, the utmost gratification to present to you our president, Dr. John Shaw Billings, and to announce that the Congress of American Physicians and Surgeons is now duly organized.

Dr. Billings then came forward, and in a few words expressed his appreciation of the honor which had been

conferred upon him in his selection for the important position of President of the Congress.

He then read a cablegram of greeting to the Congress just received from Sir Henry Acland, the late president of the Medical Council of Great Britain.

The President then introduced DR. S. C. BUSEY, the Chairman of the Committee of Arrangements, who made an

ADDRESS OF WELCOME.

He welcomed the Congress in behalf of the Committee of Arrangements and of the profession and citizens of Washington. The circumstance of the simultaneous assemblage here to-day of the special medical societies of this country, he said, marked an epoch in the history of the American medical profession. The gratification felt in welcoming them was enhanced, he said, by the presence of the distinguished men from other countries who have come to honor and encourage them.

DR. PEPPER, from the Executive Committee, submitted the following

BY-LAWS,

which were adopted.

1. This organization shall be known as "The Congress of American Physicians and Surgeons."

2. It shall be composed of national Associations for the promotion of medical and allied sciences.

3. It shall hold its sessions triennially in the city of Washington, D. C.

4. The officers of the Congress shall be a President, Vice-President, Secretary, Treasurer, and an Executive Committee.

5. The President shall be elected by the Executive Committee, of which he shall be *ex-officio* a member.

6. The Presidents of the participating societies shall be *ex-officio* the Vice-Presidents of the Congress.

7. The Secretary and Treasurer shall be elected by the Executive Committee. They shall be *ex-officio* members of the Executive Committee.

8. The Executive Committee shall be composed of one member from each participating society, and said members shall be elected by the various societies at the next annual meetings subsequent to the Congress.

It shall be charged with all duties pertaining to the organization of and preparation for the ensuing Congress, including the election of all officers and of a Committee of Arrangements.

It shall superintend the publication of the transactions of the Congress.

9. The expenses of the Congress shall be divided between the participating societies in proportion to their membership.

10. The admission of new Associations to participation in the Congress shall be by unanimous vote of the Executive Committee.

EVENING SESSION.

DR. REGINALD H. FITZ, of Boston, opened the discussion on

INTESTINAL OBSTRUCTION IN ITS MEDICAL AND SURGICAL RELATIONS.

He confined himself to the diagnosis and medical treatment of acute, internal, mechanical varieties of intestinal obstruction. The only causes recognized were strangulation from adhesions, vitelline remains, peritoneal slits, pockets and rings; intussusception, knots and twists; abnormal contents; strictures and tumors. The evidence presented resulted from the analysis of 295 cases collected from medical literature since 1880.

The most constant symptoms of obstruction proved to be pain, vomiting, tympany, and tumor. Stoppage of the bowels was not regarded as the most essential symptom in diagnosis, since frequent, loose stools characterize intussusception and may occur in other varieties of obstruction. Too much attention directed to this symptom leads to erroneous diagnosis, since it is of frequent occurrence in peritonitis, and often results in irrational and injurious treatment.

The physician is called upon to decide whether the given case is one of acute obstruction; then, where its seat and what its cause; and, finally, what is to be done. The evidence showed that the diagnosis is to be made by excluding the various causes of peritonitis. Its seat in the large or small intestine is to be determined by injection, under high pressure, when necessary. The variety is, for most practical purposes, an intussusceptum or a twist of the large intestine, and strangulation or gall-stones of the small intestine. The differential diagnosis depends upon the relative frequency of these varieties, the age of the patient, the antecedent and immediate symptoms. The treatment consists in the attempt to relieve intussusception of the large intestine by forced injections, under anæsthesia and with massage, and to treat obstructing gall-stones by opium, possibly with the aid of laxatives and electricity. All the other varieties of acute obstruction require surgical treatment. The latter is also necessary, on or before the third day, in cases of intussusception not yielding to forced injection, and in gall-stones when the symptoms become urgent.

DR. SENN, of Milwaukee said: The operative treatment of intestinal obstruction is in its infancy. Since laparotomy for other indications has become an established and frequently practised procedure, a number of the bolder and more aggressive surgeons have resorted to direct measures for the relief of intestinal obstruction, but, like all serious operations for otherwise incurable and fatal affections, its general application has met with strong opposition, not only by the laity, but also by the profession. The appalling mortality which has attended the operation in the hands of even the most competent surgeons has been quoted in the discussions on this subject in medical societies as a sufficiently strong argument in favor of non-operative interference. In this regard, the history of laparotomy for intestinal obstruction is only a repetition of the history of ovariotomy.

The mortality of laparotomy for acute intestinal obstruction will be reduced to that of other intraperitoneal operations, and surgeons will recognize the importance of operating early before the patient's strength has been wasted by the disease, and before the parts involved in the operation have undergone irreparable textural changes. The mortality of abdominal section in the treatment of the different forms of intestinal obstruction will always be great because the conditions which have caused the obstruction are often an intrinsic source of danger. In others the removal of the obstruction necessitates an intestinal resection, which in itself is a vastly more serious operation than the removal of an ovarian tumor.

Intestinal obstruction, irrespective of its cause, is always followed by a series of consecutive pathological changes which, independently of the partial or complete interruption of the passage of intestinal contents, tend to destroy life. The dilatation of the intestinal tube on the proximal side of the seat of obstruction may give rise to such a degree of abdominal distention as to destroy life from suspension of important functions by mechanical pressure. In acute obstruction, violent peristalsis on the proximal side of the occlusion causes an increased afflux of blood to the portion of bowel the seat of exaggerated physiological function; which, after cessation of peristaltic action, remains as an intense venous and capillary engorgement. During the paretic stage the bloodvessels in the intestinal wall have lost their support, hence transudation and exudation readily take place into the paravascular tissues, which, combined with the capillary stasis attending this stage of the inflammatory process, results in gangrene. The intestinal wall, in a state of inflammation, becomes permeable to pathological microörganisms which are always present in the intestinal canal, and which, after passing through the entire thickness of its walls, enter the peritoneal cavity and induce septic peritonitis—a frequent immediate cause of death. These facts are cogent reasons for adapting surgical measures in all cases of intestinal obstruction due to mechanical causes as soon as a diagnosis can be made. If this were done, the two greatest sources of immediate danger attending and following laparotomy, shock and septic peritonitis, if not entirely avoided, at least would be less likely to occur, and the tissues the seat of operation would be in a favorable condition for direct treatment and repair.

An abdominal section in the treatment of intestinal obstruction is always necessarily attended by some shock, and it is, therefore, of the utmost importance to perform the operation at a time when the organs of circulation and the nervons system are still in a condition to resist successfully the immediate effects of the operation. Death from septic causes can only be avoided by operating at a time when the intestinal canal, at the seat of obstruction and on its proximal side, is still in a condition capable of resisting infection, and of undergoing a satisfactory process of repair, in case it becomes necessary to incise or resect during the operation. The statistics of operation for intestinal obstruction will improve as soon as we shall be able by improved methods of diagnosis to make an early positive diagnosis, and will adopt in the treatment positive surgical measures before the prospects of a recovery have been rendered improbable, if not impossible, by days and weeks of useless, and more than useless, medication. True intestinal obstruction, whatever its cause may be, is as strictly a surgical affection as strangulated hernia, and remediable only by the same kind of surgical treatment. Physicians should recognize this fact, and should call into counsel a surgeon as soon as a probable diagnosis of intestinal obstruction can be made. To let a patient die of the consequences of a removable cause of obstruction, without an operation, is a reflection upon modern surgery. The difficulties which surround the diagnosis, and the present imperfect technique of the operative procedures in cases of intestinal obstruction, are not only responsible for the heretofore late operations, but also, to a great extent, for the many failures. Ways and means for more accurate diagnosis will have to be devised by more careful clinical observations and by experimental research, while new and improved methods of operation must be devised and their merits safely tested by experiments on animals.

Insufflation of hydrogen gas is a valuable means of diagnosis in locating the seat of obstruction before tympanites has set in, and, therefore, best adapted at a time when most needed—during the early stage of intestinal obstruction. If the colon dilates uniformly from the sigmoid flexure of the cæcum, the obstruction must be sought for higher up in the intestinal canal. The passage of gas through the ileo-cæcal valve rendered incompetent by the distention of the cæcum is always attended by a characteristic gurgling or blowing sound, which is always heard most distinctly by applying the ear or stethoscope over the ileo-cæcal region. Not infrequently the sounds are so loud and distinct that they can be heard at a distance of several feet.

If the gas passes the ilio-cæcal valve under a pressure not in excess of that required to overcome it in a state of health, and if, after inflation, a thorough examination of the ileo-cæcal region by inspection, palpation, and percussion reveals nothing abnormal, the search for the obstruction is continued by inflating the small intestine slowly and making frequent examinations of the abdomen to ascertain the height to which inflation has been made and to study the relative positions of the different abdominal organs. Inflation is also a useful diagnostic resource in locating the obstruction during laparotomy for intestinal obstruction. The intestine below the seat of obstruction is always empty, collapsed, and anæmic as compared with the portion above the obstruction.

When the obstruction is located high up in the intestinal canal and the tympanites is extensive, the empty portion of the small intestine has by compression become displaced, and is often not readily found. In such cases the distention of the bowel from below will indicate to the surgeon at once the location and length of the intestine below the seat of obstruction from below upward. The manipulation of the healthy intact portion of the intestinal canal in search for the obstruction is by far a less hazardous procedure than the handling of the distended portion above the obstruction rendered paretic, exceedingly vascular, and much softened by obstruction.

In cases in which we suspect the presence of a perforation, inflation with hydrogen gas will demonstrate not only its existence, but also its location. Invagination is rare above the ileo-cæcal valve, and location can be determined by inflation with hydrogen gas, and if resorted to early it may prove the means of effecting the mechanical reduction. In ileo-cæcal and colonic invagination slow and persistent distention of the colon with hydrogen gas, with the patient completely under the influence of chloroform, is the safest and most efficient means of effecting reduction, and should always be resorted to whenever these conditions are recognized or even suspected.

MR. DURHAM, of London, desired to express the extreme pleasure he felt in coming here among his American *confrères* and at the hospitable reception he had received at their hands. The subject of intestinal obstruction is one in which he had taken the greatest possible interest. It was possible some of those present might have come across a book entitled *Quain's Dictionary of Medicine*, and if they would look over that book they would

find that the article on intestinal obstruction was written by him. He takes a deep interest in these cases, inasmuch as the life and health, the comfort and prosperity of the patient depend upon a rightful action on the physician's part. Truly he may say there is no class of cases more dangerous, more serious, more urgently calling for surgical treatment than those cases of intestinal obstruction. He agreed with Dr. Senn in one thing, and that is, that the sooner the physician calls in the surgeon the better it is for the patient. He agreed with Dr. Senn, that surgical operation should be performed as soon as the diagnosis is made, but he did not know any class of cases in which the diagnosis is so difficult as in this class of cases. He went further than Dr. Senn and said that cases do occur, from time to time, in which the surgeon is justified in operating before he had made a diagnosis, in order to enable him to make one.

In regard to this question of diagnosis, he said, that if his hearers would recall his article in Quain's *Dictionary*, they would recollect that he had collected several thousand cases. What we should be guided by is not the statistical probabilities but the actual indications of the particular case before us. Every case must be studied and judged upon its own merits and treated according to the indications that present. The chances may be 999 to 1000 in favor of one man and 1 to 1000 in favor of another.

In regard to the treatment of intestinal obstruction, he would say the first thing to do, is to determine the seat of the obstruction. In cases of acute intestinal obstruction, or where there is reason to believe that the obstruction exists in the small intestine, then he believes the proper course of treatment to pursue is to open the abdomen and search for the cause and relieve it as best we can. On the other hand, when the indications are that the obstruction is in the large rather than in the small intestine, there is not the same degree of urgency in a very large proportion of cases. Of course, the procedure to be adopted must depend upon the fact as to the seat and the cause of the obstruction, and here he ventured, with the greatest hesitation, to take issue with Dr. Senn on this point. Dr. Senn said that lumbar colotomy is obsolete. As a matter of fact, it is not obsolete. It is an operation that is performed on the other side of the Atlantic day after day, and will never become obsolete if he can help it. He knew of no operation in surgery, except the simple one of tracheotomy, that affords so much relief and prolongs the patient's life as this. He said that if he himself were the subject of cancer of the rectum, he should most certainly have lumbar colotomy performed.

DR. WM. ORD, of London, said that he supposed he was called upon as a physician to express the general inadequacy on the part of that branch of the profession to deal with the subject of intestinal obstruction. The function of the physician appeared to him, as has been said before, to come in very early in the case. He must admit that the question of diagnosis is a matter of very great difficulty, where in the case of physiological obstruction there is an absence of indication of local pain or a fever or anything like a bloody discharge from the bowel. Perhaps he may be thought to be a little cowardly, under such circumstances, if he should be inclined to adopt the views of the first speaker rather than of the second, and claim a little time. Sir Wm. MacCormack would, he thought, bear him out in some of his remarks. In a good many of these cases he has operated with the greatest care, but the operation has been performed too late. But in cases in which things seemed most favorable in regard to time, and in which the operation was done with the greatest care and most perfect surgical completeness, it has been as satisfactory in its results as one might have hoped.

MR. THOMAS ANNANDALE, of Edinburgh, said that he had two good reasons for not speaking: first, he had arrived but half an hour ago from the steamer, and second, that unfortunately he had not, owing to that, been able to hear the papers or much of the discussion. As he had been called upon to speak, he might be permitted to give his opinion in regard to the treatment of intestinal obstruction. Now, in regard to treatment, he thought it was very important to divide these cases into acute and chronic. In regard to the acute cases, it is perfectly right that everything medicine can do should be tried, but should not be tried too long. As soon as it has been tried for forty-eight hours then the case belongs to the surgeon, and the sooner he opens the abdomen the better. If possible, open the intestine and form an artificial anus.

In regard to chronic cases he thinks one might wait in fact until the symptoms have become acute, and then if the symptoms of a chronic intestinal obstruction become acute, then he should operate at once. He had heard his friend, Mr. Durham, speak of lumbar colotomy in cases of cancer of the rectum. He has learned to prefer inguinal colotomy in the left inguinal region, because it is not a serious operation in the matter of risk, if properly done, and is certainly a simple one in a large majority of cases.

DR. SENN, in closing, said that he could assure Mr. Durham that hydrogen when injected into the intestinal canal never forms an explosive, as the canal naturally contains hydrogen gas. It has been tried hundreds of times on animals and at the bedside without an explosion. One of the first experiments he made was on himself.

In reference to colotomy, he would say that he did not mean to condemn this operation. He advocated its use in several cases, but he did repeat the statement that lumbar colotomy might become obsolete. The operation is done for the purpose of securing to the bowel perfect physiological rest, which cannot be done by a lumbar colotomy.

WEDNESDAY EVENING, SEPTEMBER 19TH.

DR. CHARLES K. MILLS, of Philadelphia, opened the discussion on

CEREBRAL LOCALIZATION IN ITS PRACTICAL RELATIONS.

He began by referring to the fact that from the clinical observation of practical physicians sprang the conceptions out of which developed the science and art of cerebral localization. Allusion was made to the discoveries of Bouillaud and of Broca on speech localization; to the announcement by J. Hughlings Jackson in 1864, that certain convolutions superintended the delicate movements of the hand which were under the immediate control of the mind, and to Hitzig's researches having originated from his observing certain ocular movements during galvanization of the heads of his patients. Brief reference was made to the history of American work in

localization; to the investigation in 1874 of the New York Society of Neurology and Electrology; to Putnam's discovery that irritation of the white matter beneath the definite cortical centres produced movements similar to those caused by irritation of the centres themselves; to the labors of Wood and Ott on the heat centres, and to the light thrown by these investigations upon the mechanism of fever, and the action of drugs upon different forms of high temperature.

Before taking up the surgical aspects of the question, he briefly discussed some of the practical results wrought by cerebral localization for psychological medicine and medical jurisprudence; for general symptomatology and diagnosis, and for medical therapeutics and technique.

Trephining for cases of insanity, particularly when guided by the rules of localization, was briefly considered. Two of the recent cases of brain operation, reported by Bennett and Gould and by Macewen, were cited as possibly opening a new field for surgical interference in insanity, the excision of cortical areas as a method of treatment when certain subjective phenomena, such as hallucinations of sight or hearing, can be given a local habitation in the brain.

In turning to the surgical aspect of cerebral localization in its practical relations, Dr. Mills stated that his remarks would be chiefly concerned with questions of diagnosis. He considered, first, the forms of disease and injury in which cerebral localization is a valuable aid to diagnosis; and, secondly, the topographical diagnosis of the parts of the brain accessible to surgical interference, with some sources of error in such diagnosis. The forms of disease in which such diagnosis has been used are intracranial tumors, cysts, fractures, hemorrhages, abscesses, and discharging cortical areas.

In considering the localization of brain tumors, Dr. Mills referred to twenty cases of autopsies occurring in his own personal experience, in about one-half of which the tumors were in surgically accessible areas, and in at least one-fourth of which successful operations might have been performed. He advocated, from experience, the excision of old gummata, and also, in special cases, of tubercular growths. The value of localization was shown in cases of fracture in which the extent of the unseen damage could not be told by the position and character of the visible lesions.

Of the different forms of intra-cranial hemorrhages, subdural, cortical and intra-cerebral, were most amenable to localizing diagnosis. The rules for the local diagnosis of these forms of hemorrhage were then given. Dr. Mills advocated the performance of trephining in exceptional cases of hemorrhage into the ganglia and capsules—cases in which symptoms indicated that the bleeding had not broken into and inundated the ventricles. From his dissections, the best site for operation in such cases, all things considered, would be in the anterior portion of the first or second temporal gyre. He favored Hughlings Jackson's suggestion of excising localized cortical areas, even when coarse lesions could not be made out, in cases of spasm, beginning locally and deliberately.

The inaccessible areas had been narrowed down by the venturesome surgical explorer until reduced to the middle regions of the base and its bordering convolutions, the corpora quadrigemina and the pons-oblongata.

The characteristics of localizing symptoms were described as phenomena of irritation, destruction, instability, pressure, invasion, and reflex action. Signal symptoms and the serial order of motor phenomena were discussed. Briefly, in certain regions of the brain an accurate topographical diagnosis could be made with great certainty from positive localizing symptoms. These brain areas include the entire motor zone, in which are embraced the motor or emissive speech area—the region of Broca; the visual area in the cuneus, giving lateral hemianopsia, and the intracerebral visual tracts, possibly also the angular gyre, and the lateral surface of the occipital lobe. In other regions of the encephalon the topographical diagnosis could be made with sufficient accuracy, even for surgical purposes, by the study of the positive symptoms, with, in addition, the application of processes of exclusion and successive differentiation. Particular stress was here laid upon the importance of pressure and invasion symptoms. These areas for approximately certain topographical diagnosis include the cerebellum, the prefrontal lobe, the temporal lobe and even certain cranial nerve districts, as the auditory and facial, when the lesion would be localized within the cranium between the superficial origin of the nerves and their entrance into their foramina or canals of exit.

Motor localization has become almost an exact science The latest physiological research bearing upon the subdivision of the motor area and the light thrown upon the question by surgical operations were discussed. It was held to be imperative for the neurologist and surgeon to have exact knowledge, not only of the anterior and the posterior limits, but also of horizontal subdivisions of the motor zone.

The old method of subdividing the motor zone into three elliptical or circular areas from above downward was considered insufficient, but the neurologist should be able to locate for the surgeon from a study of motor phenomena at least seven or eight positions for trephining, these positions being selected by a close study of the initial or signal symptoms, the serial order of movements, and also of the amount and character of the temporary paralysis after the seizure and the method of extension of the persisting palsy. Reference was made to operations performed through accurate localization in these areas.

The view of Ferrier as to the localization of the centre for ocular and head movements in the second frontal gyrus was concurred in, and observations were cited in its support; when turning of the head and eyes was the starting-point of the spasm, this localization was sometimes indicated. The fact that cortical oculo-motor palsies were not present as a persistent condition, even with definite lesions of the second frontal gyre, was explained by the intimate and peculiar connections of the oculo-motor nuclei at the base; they do not persist for the same reason that paralysis in the upper distribution of the facial nerve is so seldom permanent. He believed that there was a special centre for the orbicularis palpebrarum movements, probably below and adjacent to the oculo-motor centre.

Dwelling upon the sources of error in motor localization, the questions of reflex spasm, of unilateral convulsions due to uræmia, lead, and other toxic agents, and hysteria and hystero-epilepsy were briefly discussed. Sufficient diagnostic difficulties are still present to make it important, in the light of the tremendous impetus toward operation, to examine carefully all questions of

differential diagnosis. In certain spasmodic affections, the resemblance between those clearly of reflex origin and those as demonstrably central, was very striking. Trigeminal epilepsy, whether dural, facial, dental, nasal, pharyngeal, laryngeal, or of whatever local origin, might cause unilateral convulsions or even mono-spasm. Dural epilepsies are especially worthy of attention, as shown by the researches of Dupuy, Brown-Sequard, Burdon Sanderson, the New York Society of Neurology and Electrology, Duret, Bochefontaine and Francois-Franck. Franck has made a careful comparison and contrast of cortical epilepsies with those which are reflex and toxic, including those which are due to irritative lesions of the dura mater.

He then referred to five cases in his own experience in which operations had been performed for epilepsies apparently reflex in character; two in which spicules of bone had been removed from the dura mater, one in which an old inflammatory lesion of the membranes and cortex from traumatism was present, and two in which scalp cicatrices were removed. While fearing with Franck, that we were not always able to make a trenchant separation between reflex and cortical epilepsies, some points of separation were indicated.

True Jacksonian epilepsy, Dr. Mills believed, was sometimes reflex in origin, that is, that it was established by intense, persistent peripheral irritation, and even after the irritation had been removed, the cortical discharge continued; herein, perhaps, lay the explanation of Jacksonian spasm without coarse lesion, and herein also, perhaps, was to be found the justification for the excision of cortical discharging areas. He referred to a case in which epilepsy, clearly of Jacksonian type, was just as clearly due to a fibroma involving a nerve trunk on the palmar surface of the hand, and in which the patient was cured by removal of the growth.

With reference to sensorial localization, cutaneous and muscular, the views of Horsley and Schäfer with reference to the limbic lobe were accepted in part. He believed that the evidence is becoming stronger every day in favor of the existence of a zone for the sensations of touch, pain, and temperature separate from cortical motor areas. Collections of cases, such as those of Starr, Petrina, and others, which were supposed to indicate that the sensory areas coincide largely with those of motion, were not regarded as overcoming the positive evidence of decided destructive lesions of the cortical motor zone without any sensory disturbance. From a study of his personal cases, he had concluded that they did not support the doctrine that the motor and sensory areas coincide. Notes of these cases were given and also cases from other reporters. He believed with Bechterew that the loss of sensation in animals which have had the motor area destroyed was apparent and not real. Some light had been thrown upon this disputed question by careful examination of patients after operation, particularly when certain definite cortical areas had been clearly excised. Reference was made to the cases of Horsley, Weir and Seguin, Lloyd and Deaver, and others. The speaker believed that these observations and experiments pointed clearly to the theory that the motor zones are motor alone in function. His view was that the region for general sensation including touch, pain, temperature and perhaps pressure, location and muscular sense could be divided into special areas for the various distinct portions of the body and that these centres lay alongside and had close anatomical and morphological relations with corresponding motor centres, but that they were not identical with them. He located these sensory areas in the gyrus fornicatus, the hippocampal gyre, the precuneus, and the lateral postero-parietal region.

The practical conclusion was that the neurologist and surgeon must depend upon motor symptoms alone in fixing the site for operation in cases in which the motor lesions are definite. When positive sensory symptoms are present, they may sometimes serve to aid in locating more exactly the position for operation, but the data are not sufficient for positive reliance.

The question of morphological peculiarities of the human brain was briefly alluded to as having some practical bearing upon the subject under discussion. The position of the so-called angular gyre and aberrations in the parieto-occipital region were more particularly discussed. Even the fissure of Sylvius, the central and the parieto-occipital fissures sometimes present considerable variation, but, as a rule, such aberrations are not confusing in operating on the motor region after the method of Broca, Thane, and others.

Dr. Mills concluded by saying that the discoveries in cerebral localization with the achievements in antiseptic surgery constitute the greatest triumphs which adorn the history of the noble science and art of medicine.

DR. ROSWELL PARK, of Buffalo, spoke as to the surgical aspect of the subject, and omitted consideration of those cases in which operation is dictated by a study of the subjective rather than of the objective features.

Cerebral topographical anatomy. The areas which most concern the surgeon are those which cluster around the fissure of Rolando. A few bony prominences deserve attention in this connection—that at the point of the nose known as the glabella, the external occipital protuberance, known also as the union; the point of the vertex half way between these two—the bregma; the external angle of the orbit, the tip of the mastoid process and the lower border of the alveolar process of the upper jaw. The fissure of Rolando has its upper end about five centimetres back of the bregma, but does not run quite in the middle line, its lower end lies about one-half centimetre behind the auriculo-bregmatic line and a little above an imaginary line projected backward from the superciliary ridge, thus the lower end of this fissure will be found about six centimetres above and a little behind the external auditory canal; or about an inch behind the bifurcation of the fissure of Sylvius. In regard to the convolutions, it must be stated that lesions of the dura mater overlying motor areas are not always to be distinguished from lesions in the cortex beneath. It is enough for the surgeon that a lesion of some kind can be located with reasonable accuracy. It matters not whether this is an old, irritative lesion; an acute suppurative process between the bone and the brain, or an abscess or tumor of the brain itself. The indication for exploration is just as strong in either case.

When and where can one trephine with safety? The safest rule is first to apply the trephine over those areas which do not overlie large vascular channels. Afterward the opening may be extended in any direction and to any required extent. The greatest hesitation is with regard to opening one of the sinuses. Two dangers

attend such an accident, one fatal air embolism, the other profuse hemorrhage. The former danger is almost a theoretical one, and the other may be overcome by plugging the sinus, or closing its wound with a fine needle and suture.

Cerebral and cerebellar abscess. Bergmann has shown that abscess of the brain has but one result—death—and that the surgeon's knife offers the only relief. So far as we know, there is no such thing as idiopathic abscess of the brain; it is always the result of some external wound of the head or some extension from diseased surrounding bone. The only exceptions to this statement are to be found in the case of pyæmic or tuberculous abscess. The symptoms of deep brain abscess may be divided into three groups according to causes: 1. Those which are inseparable from indications of suppuration. Such are those disturbances which may follow any deep-seated foreign body. 2. Symptoms of increased intra-cranial pressure and of disturbed relations. 3. Special symptoms by which the locality of the disturbance may be ascertained. As long as the gray matter is undestroyed, the collection of pus may assume large dimensions, and still no intense motor symptoms appear. Local elevation of temperature over the abscess is a symptom of importance when present, but its absence need not negative a diagnosis, if made on other grounds. Wernicke has stated that there is a peculiar disturbance of speech which points to lesion of the temporal region. This is the confusion of correct with incorrect words. In the general diagnosis of cerebral abscess, it is to be remembered that there usually is a latent period which may continue for an indefinite period. The stage of active symptoms is usually ushered in by more or less headache; slight rise in temperature; local or motor symptoms can only be expected when the abscess is in the motor area of the brain.

In operating for abscess of the brain, operators, until recently, have satisfied themselves with incising the dura and doing nothing more. With the introduction of aspirating methods, the hollow needle came to be used for brain exploration. The dangers of this procedure are certainly small. The danger of hemorrhage has been over-estimated. A temporary tampon will control deep hemorrhage, while, in bleeding from the pia mater, the vessels may be secured with ligatures or serre-fines. In brain abscess consequent upon middle ear disease the best point to trephine, according to Bergmann, is above and behind the ear. Macewen proposes a second counter-opening on a level with the floor of the abscess.

Brain tumors. The principal features of these growths which produce symptoms are location, size, character, rapidity and manner of growth, and extent to which they affect surrounding brain tissue. Considered in their surgical relations, we may, with Bergmann, divide them into (*a*) the circumscribed or encapsulated, and (*b*) the infiltrated or diffuse, around which, as a rule, there is a zone of softening. A third class may be mentioned, *i. e.*, those growing from the interior of the cranium, from the bone or dura.

If a reasonably satisfactory diagnosis can be made, it must be, indeed, an extensive growth of the cranial vault which shall contraindicate operation. The question of what and how many brain tumors are operable has been best answered by White. He found in one hundred brain tumors met with in the dead room of Guy's Hospital that only nine could have been removed—one tuberculous nodule, four sarcomas, two undetermined tumors, one cyst, and one myxoma. Nine per cent. could have been attacked, providing a fairly accurate diagnosis had been made. Of these nine tumors, five were located in the cerebellum, one in the frontal lobe, and one in the extremity of the occipital. It is doubtful whether these seven could have been recognized accurately enough during life to justify operation; while the myxoma was impossible to diagnosticate. It is thus seen that by no means all tumors which can be diagnosticated can be deemed suitable for operation.

Operation for intracranial tumors. The head should be shaved two or three days before operation, washed with green soap and ether, and antiseptic compressors applied. Chloroform should be, as a rule, the anæsthetic, on account of its contracting influence on the vessels of the brain. Morphia, hypodermatically, and ergot may be resorted to for the same purpose. The author suggested that, after localizing the lesion, a small, disinfected headless tack be driven through the scalp into the bone at the point determined upon. After the dissection of the external flap this will point out accurately the point to be first attacked. In order to prevent hemorrhage the author had found a spray of antipyrin solution (1 : 40) of service. The semilunar flap is the proper shaped one to raise. Its apex should be in such a position as to allow of drainage with the patient on his back. The periosteum should preferably be raised with the flap. The use of the trephine is preferable to the hammer and chisel. Since Macewen has taught us how to preserve the fragments of bone and restore them to their place, his method has been widely tried and universally commended. The dura mater should be incised around a large part of the area at a distance of one-eighth to one-quarter of an inch from the edge of the bone The appearance of the dura is sometimes a guide to trouble beneath. In recent cases it is sometimes highly vascular; in old cases it may be yellowish or discolored. Whenever adherent it should be freely excised. Horsley claims that marked protrusion of the dura indicates pathological intra-cranial tension. The color of the brain should be noted, remembering that the cerebellum has normally a different appearance from the cerebrum. Sometimes, where there is uncertainty as to which convolution is the desired one, the battery may be employed. When no indication of lesion is found, further exploration may be conducted with a small aspirating needle or a blunt probe.

Should a tumor be discovered, the incisions for its removal shonld be made perpendicularly to the cortex for the purpose of avoiding hemorrhage and division of the conducting fibres. Removal of a layer of cortex, whether normal or abnormal, does not leave, as one might fear, a prominent gap with vertical sides, since, in a short time, the depressed portion is made to bulge almost to the level of the intact parts surrounding. In addition the cut edges are also slightly everted, and, if less brain is removed than bone, the edges are extruded into the opening in the skull; thus there is a continual normal tendency to hernia. Bergmann and others have shown that this tendency to hernia cerebri is in inverse ratio to the area of bone removed. Experience has taught that it is wise to remove brain tissue to an extent greater than was at first considered justifiable. In all operations

or epilepsy the portions of cortex nearest the evident lesion should be freely removed.

The matter of drainage must be determined according to the circumstances of the case. An abscess must be drained as long as pus is discharged. After the antiseptic removal of a tumor, the cavity should seldom be drained for more than twenty-four hours. The provision for drainage may be removed on the second day, and the wound dressed with reasonable pressure over the flap. Exudation naturally collecting in this cavity will be retained and will give rise to some pain and disturbance, but so long as the symptoms from this are not severe, the wound may be left with confidence that the fluid will be reabsorbed, and that the pressure will be the best check to protrusion.

Dangers of the operation. The principal immediate dangers are two: hemorrhage and œdema. Hemorrhage from the pia or from the brain substance is usually readily controlled, but disastrous hemorrhage may occur from unexpected sources. When there is bleeding, a temporary tampon of iodoform gauze may be applied. The dural and skin flaps are laid over this, and an absorbent dressing applied. At the end of forty-eight hours this may be removed and sutures inserted.

The second danger, that of acute brain œdema, may be brought about either by increase of intra-arterial pressure or by obstruction of the venous channels of escape. Under this accumulation the brain becomes more sodden. Removal of a portion of the cranium is virtually a diminution of the pressure normally exercised on its contents and is often followed by reaction with production of excess of fluid.

He had collected reports of 63 cases which were presented in summary and tabular form, 17 of these terminated fatally, although only 5 of these deaths could properly be attributed to the operation; 15 of the cases were abscesses, subdural or subcortical. In 11 cases the lesion was a tumor, exclusive of tubercular nodules. Of cysts, properly speaking, there were 12. The 25 other cases were of a miscellaneous nature. In 3 cases, the true character of the lesion was not revealed during the operation, and was only discovered at the autopsy. In 2 cases, in which no palpable or visible lesion was discovered at the time of operating, the symptoms which led to the performance of the operation were nevertheless relieved, though nothing but careful exploration was practised.

Of the 63 operations, 17 were performed by American surgeons. Those who have themselves operated more than once are, with the number of their operations: Macewen, 12; Horsley, 11; Bergmann, 4; Weir, 3; Keen, 3; and Park, 3.

DR. D. FERRIER, of London, said he had listened in common with every one else in the room with the very greatest pleasure and profit to the extremely able papers which have been read before the Congress, and in which were so clearly expounded the principles of cerebral localization and of the surgical treatment of cerebral disease. He took especial personal pride in the fact that the question of cerebral localization and its practical application had been assigned a very important place in this gathering of the profession of America. It had been for many years a cherished idea with him, long before it had taken any definite shape or crystallization, that the accurate determination of the functions of the brain would in time lead to the successful treatment, by surgical means, of the most distressing ailments to which our fellow creatures are subject. Regarding the results of his experiments upon monkeys and other animals, he sounded several of his surgical colleagues with a view to obtain from them assistance in cases which he thought might be the subject of successful surgical procedure, but received little encouragement from them. He was told that men were not monkeys, though they may be descended from them.

About five years ago, at a meeting of the Medico-Chirurgical Society of London, he ventured more boldly to advocate the surgical treatment of cerebral disease, but he was honored with a denunciatory leading article in the *Lancet*, and thought this was so curious that he took note of it at the time.

If one bears in mind the brilliant results of Macewen, Horsley, Keen, Weir and others, he thought he would see that cerebral surgery has amply vindicated itself as a justifiable branch of the art of surgery. When we consider the numerous cases of tumor that have been successfully removed, of abscesses evacuated, of epilepsy permanently cured by surgical procedure and in cases which have been clearly indicated from the localizing symptoms alone, then he thought one would say there is likely to be a great future before the cerebral surgery of to-day. He thought, however, we must be cautious, because in our newborn enthusiasm we may be apt to do things our better judgment and larger experience may not consider justifiable. He did not think the dangers of cerebral surgery to be altogether due to septic inflammation. There have been cases which have not been successful. He has seen several of these that have occurred in his own practice. That, however, is not more than is true of any great surgical operation.

He thought that the cases of recovery are distinctly much larger in proportion than those in which evil results have followed. He confessed that in some respects he had been disappointed in regard to some of the cases. He alluded more particularly to those cases which Dr. Mills referred to as being the subjects of Jacksonian epilepsy. In these cases we have reason to believe there has been an irritative lesion directly localized in a definite portion of the brain. Cases of this kind have been operated upon, the discharging lesion has been removed, and certain cases have been permanently cured. Nevertheless, from the fact that some have recovered, he thought it would be well to give the patient at least the benefit of the doubt. In endeavoring to cure our patient we may also inflict a greater evil, and he, himself, shared very largely Mr. Macewen's opinion that to render a patient hemiplegic would be a very questionable cure for unilateral convulsions.

There is still a good deal of work to be done, both in regard to determine the function of the brain and also in determining the accurate diagnosis of cerebral disease. We know now a great deal more than was known a few years ago, but still there are regions which are practically to us a *terra incognita*, and it will require much laborious work before we can say we have gained a thorough knowledge of the functions of the brain. There are a good many differences still prevailing among those who believe thoroughly in the doctrine of localization in regard to the exact limits of the region supposed to be endowed with specific functions. These differences are regarded by the opponents of localization as signs of a

divided household. He did not think so. He regards them as signs of healthy activity. They are only family jars.

As there were several speakers to come after him, who were to address the Congress this evening, and particularly his distinguished colleague, Mr. Horsley, who has done so much for cerebral surgery, he would no longer trespass upon the patience of the audience, but would thank them for their very great reception of this evening, with which they had favored him.

MR. HORSLEY remarked that, in the course of what he had to say, he should have occasion to refer to numerous experiments. These experiments have been performed by himself in conjunction with other observers, and therefore when he referred to them as his own work he wished they should understand that he was simply the spokesman of his colleagues, Prof. Shäfer, Beevor, Gotch, and Dr. Semon. The subject is so enormous, he was at the greatest difficulty to know in what way he could be of any service to the meeting. It occurred to him that he had better take up a distinct line and give in detail, so far as he was aware, the latest points that have occurred in that line. He would, therefore, give some facts and ask them to take on trust the observations on which these facts, in a great measure, rest. He would confine his remarks entirely to that region which Prof. Ferrier was the first to map out, viz., the so-called motor region.

He believed in the so-called motor region they had three functions clearly represented:

1. Slight tactile sensation.
2. The so-called muscular sense.
3. Movement.

He would ask them to remember the yet more fundamental principles which underlie our information on this subject. They must understand that these three functions are wrapped up closely together, and that in each particle of the cortex there are represented all the segments of the body in a varying degree. If they adopt the views of Dr. Hughlings Jackson, of course they all believe that in the corpuscles of the fourth layer is the seat of representation movement. It seemed to him that they cannot refuse to believe that the small corpuscles are similarly the seat of representations of 1 and 2, *i. e.*, sensory representations. The evidence upon which this belief is founded is to be found in experimental evidence and clinical observations. Facts of this kind he has published at length.

Passing from the representation of a tactile and muscular sense, he would say a word or two upon the needs of representation of movement in this so-called motor cortex. It seemed they must consider this very closely if they were to gain an accurate knowledge of the representation of the different segments of the body. Prof. Ferrier was the first to give them a correct map of the representations of the face, arm and leg. Dr. Mills has stated that Prof. Shäfer and himself showed that the trunk was represented on the mesial surface of the hemisphere. Dr. Beevor and he believed it would be perfectly possible by laborious investigation to split up these centres very minutely. The method adopted was as follows: They divided this so-called motor area into squares two millimetres in length, and they excited each square of the cortical surface with a very weak faradic current—in fact, the weakest stimulus that would produce any movement at all.

He would illustrate the general result of the observation, and would take for that purpose the representation of the movement of the thumb. The representation of the thumb is focussed in front of the lower end of the intracranial sulcus, and it extends over a great deal of the upper limb area. This representation gradually diminishes in intensity of representation as we pass from the focus upward. The shoulder and the thumb form the two most important parts of the upper limb. The shoulder is represented in exactly the opposite part of the upper limb area to that of the thumb, and it conversely diminishes in intensity downward. The question of the limitation of the whole area of representation of any given segment is most important.

DR. FERRIER has always held that these areas are limited by hard and fast lines, and that no one area trenches upon another. Unfortunately, he could not follow his honored teacher in this belief. He was perfectly sure these were what may be called border centres, and in one portion of the brain Dr. Ferrier himself drew attention to the fact that in one spot we have representation of the two limbs. The representation of the face at its upper border merges into the representation of the upper limb. So if they have a focal lesion at that spot there are two "signal" symptoms. For diagnostic purposes it is absolutely necessary for us to be aware of the relation of one focus to another.

He would now turn to the question of the representation of the character of movement. Dr. Ferrier, in his monograph published in 1874, pointed out that in certain parts of the so called motor region there were certain movements represented. Dr. Beevor and himself carried this further, and could trace gradation of representation of different movements. He would give two examples. At the upper part of the upper limb region extension of the elbow is represented, whereas, in the lower part of the same region flexion is represented, and between the two there is confusion. This practically holds true of the various segments of the body.

He would give one more example, which gives him special pleasure. It is an example of the representation of extension of the wrist which Dr. Keen referred to in his cases before the Surgical Association. In his diagnosis he had figured the exact spot where, according to Dr. Beevor, extension of the wrist is most represented, that is the anterior border of the upper limb region. This point is specially interesting to them, because they are in a position to show that extension of the wrist must precede every fine movement of the limb. This brings to a conclusion what he had to say of representation of movement. The facts referred to as being observed by Dr. Beevor and himself are in harmony with the facts observed by Prof. Shäfer and himself. There are minute points of difference due to the species of monkey employed. During the past two years they had employed but one species of monkey, viz., macacus sinicus.

He would now speak of cortical epilepsy. Cortical epilepsy consists of several stages of a preliminary aura, then a tonic stage, then a latent period, then the clonic stage, and then, finally, the stage of exhaustion or paralysis. For five years he has been making observations respecting the possibility of finding out which of these kinds of spasms in a muscle are due to the cortex cerebri alone. Here they must look upon the convulsion from two points of view. The connection between the cortex

and the spinal system is, of course, brought about by the pyramidal tract. Now, obviously, if they investigate the convulsed muscles by the ordinary graphic method, they should obtain a tracing, the uprising of which indicated the tonic stage, then a pause and a fall; then little waves to indicate the clonic convulsions which suceeeded the tonic stages. It might be thought the whole of these convulsions was due to the cortex, or the tonic stage to the cortex alone and the clonic to the spinal cord alone. Gotch and he had found it possible to tap the pyramidal in the dorsal region and then to stimulate the cortex and measure with a very delicate electrometer changes in the pyramidal tract. The variations indicate the impulses coming down from the cortex streaming down the pyramidal tract. It is perfectly justifiable to assume that these variations exactly correspond with the nerve impulse. Of course, they know nothing of nerve energy itself except its speed of transmission. Therefore, they investigate its character by means of the concomitant negative variations which attend the passage of nerve impulses. They had thus found that the whole of the character of the convulsion is entirely due to the cortex; with this electrometer it is possible to photograph a record, and the photographed record is given under the graphic record on this diagram. And they can see they correspond in character.

He would now conclude with a few remarks upon the so-called practical part of the subject—he meant cerebral surgery. There are a few points of special character, and to these he would allude. He had nothing to add on the subject of his previous papers.

The bone is marked with a fine drill through the scalp. He would urge the cutting out of a piece of bone by an inch drill. Then quickly, with a circular saw, open a large area by almost cutting through the skull, then with a very careful brim forceps quickly cut away the area marked out. Before, of course, such forceps are applied to the skull it is best to separate the dura mater. The dura being exposed if we perform exploratory operations, it is, he thinks, a terrible thing for the patient if the dura is not opened. He was perfectly aware that the risk was greatly increased if care is not used in the preparation of antiseptics for the operation.

With regard to faradism this is a point upon which the activity of his American colleagues had gone further than in Europe. Many interesting practical points are to be gained from faradism of the cortex if it is exposed.

He now passed on to hemorrhage. He believed the parenchymatous oozing may be stopped by the use of morphia and ergot, as Dr. Keen has suggested. But the ligature must always be applied, if possible. The wound should never be plugged, as it is disastrous to do so. The method of ligation is with catgut, applied by exactly even and gentle traction on the two ends, so as to avoid cutting through or tearing the delicate vessel.

He would refer to a source of regret in this kind of surgery, viz., the death of the patient. He would say that it is exceedingly dangerous to operate upon a patient who is under the influence of drugs and especially the bromide of potassium. They should endeavor, as far as possible, to take the patient from under influences of that sort.

Another regrettable point is the failure of the object for which the operation was undertaken, viz., recurrence of the epilepsy. He believed this was almost invariably due to incomplete operations. Cases in which he had completely removed not only the lesion but also at least one centimetre of the surrounding brain substance remained free from epilepsy. The cases in which the epilepsy recurred he did not remove, to his entire satisfaction, all the damaged brain substance around the lesion.

The prognosis of a case after operation must be guarded. If we operate upon such cases, it must be early. He thought there was some danger of doing too much in certain cases. He believed, on the other hand, that they stood in considerable danger from statistics.

In conclusion, he begged to thank the members for the very kind manner in which they had received him to-night, and also for the generous feeling of hospitality and friendship with which they greeted him on his visit to this country.

DR. KEEN, of Philadelphia, said that we distinguish in the body three cavities, the cavity of the heart, the cavity of the chest, and the cavity common to the abdomen and pelvis. In the chest and the abdomen and pelvis we recognize a large number of separate and distinct viscera with separate and distinct functions. We can investigate the diseases of each viscus and locate them according to the physical signs and the symptoms presented by the history of the case. Until very lately the head was regarded as a cavity containing one viscus acting in its entirety like the liver, spleen, or kidney. If it were affected, we were not able to distinguish one part from the other, but in his opinion we ought to regard the brain cavity precisely as we regard the chest cavity or the abdominal cavity, as a cavity containing a number of viscera, fused physically but separate physiologically.

If we recognize this fact that the head cavity is a cavity containing a number of viscera, and that each viscus has its appropriate function, we shall at once have a much clearer conception of the functions of the head and its viscera, and, therefore, of their diseases and injuries.

He was very glad that a warning note had been sounded to-night, both by Dr. Ferrier and Mr. Horsley, as to over-rashness. We are only just beginning to find out what operative surgery can do in the brain. We are in danger of very greatly overdoing it, while on the other hand we must be equally cautious in the other direction. We must take, in the head cavity, a warning and an encouragement from the history of the surgery of the abdominal cavity. The timidity with which surgeons approached the abdominal cavity, was somewhat remarkable in the early days of abdominal surgery. Their boldness now is almost appalling, and the success equally gratifying. He was very glad to hear Dr. Parks, to-night, advocate exploratory operations. We must do with the head cavity just what we do with the viscera of the abdomen. We must sometimes open the abdominal cavity in a case of intestinal obstruction, in order to make a diagnosis, and we must do so in the case of the head. We have all got to learn the limitations of operative interference from experience, and at present we have to make the experience.

A very good illustration of this was furnished to him recently. A gentleman consulted him with reference to an intense headache in the back of the head, presumably the result of a fall. He called Dr. Mills and Dr. Oliver to examine the case, and they found no localizing symptoms. He declined to operate on the ground that he could find no localizing lesion. The patient afterward

went to Dr. Weir. Dr. Weir trephined him, basing his operation on the point of the focus of the headache, and he cured his patient. He did not suppose Dr. Weir understood anything more about the nature of the trouble than he did, but he did better with his patient. This is a simple illustration of what boldness will sometimes accomplish.

Dr. M. Allen Starr, of New York, said that it was evident, from the statements to which they had listened, that cerebral surgery has a great future, but that it is largely dependent upon neurology. The surgeon is ready to proceed when the neurologist can indicate the way. The responsibility for future progress rests with physicians. It is to be met by the careful observation of cases, their thorough examination, their collection and analysis; for it is by this method that progress has always been made in the past. The examination of cases has not always been complete, and needs careful preparation. This was especially true of the cases assigned him for discussion, viz., disturbances of speech.

In the history of aphasia there have been three epochs. First, that of Broca, when it was established that lesions in the posterior part of the third frontal convolution of the left side in right-handed and of the right side in left-handed persons caused aphasia. Secondly, the epoch of Wernicke, in which a broad distinction was made between motor aphasia, the variety described by Broca, and sensory or amnesic aphasia, the lesion of which Wernicke showed to be in the first temporal convolution. Thirdly, the epoch of Charcot. Charcot says "a word is a complexus; in it one can discover four distinct elements: the auditory memory-picture, by whose means we are able to grasp the sense of words heard; the visual memory-picture, which enables us to comprehend the words written or printed; and also two motor elements—that is to say, the motor memory of articulation and the motor memory of writing: the first developed by the repetition of movements of the tongue and lips necessary to pronounce a word; the second, by the practice of motions of the hand and fingers necessary for writing." These memories, then, joined by anonation, form the mental substratum of language. But since they are distinct, each may be lost, while the others remain.

The loss of visual memories results in word-blindness; the loss of auditory memories, in word-deafness; the loss of motor memories, respectively in agraphia and motor aphasia. Individuals differ widely in the development of various mental powers, some remember things seen better than things heard, faces rather than names; others write down what they wish to remember. In these different persons aphasia presents different features; the student suffering more from word-blindness than the laborer.

Each of these clinical distinctions has a pathological basis. Motor aphasia is due to lesion of Broca's centre, and this is easily accessible to the surgeon in case the disease is open to his interference. The lesion in agraphia is still undecided. The situation of the lesion causing word-deafness is in the first and second temporal convolutions in their posterior two-thirds. (A diagram was shown, on which all the cases of pure sensory aphasia hitherto published were laid down (forty-three in number), and the situation of the lesion was shown.)

Word-blindness was also discussed, and shown to be due to a lesion in the angular gyrus. This symptom is often attended by psychical blindness, in which the patient can see but cannot recognize objects. The lesion in these cases is deep, involving the association fibres beneath the angular gyrus. It may be possible in future to select lesions of other association tracts beneath the cortex if cases are properly tested—such acts as repeating words after one another, copying, writing at dictation, involving the action of these tracts.

Pure aphasia of any of these varieties is rare. The usual form is mixed aphasia, both sensory and motor elements of speech being affected. Here the lesion is in the Sylvian region, and involves both temporal and frontal lobes. Here it is accessible to surgical interference, and the indications are plain. For though we can no longer speak of the speech-centre, we can speak of the centres of motor and sensory and mixed aphasia, and each offers a sufficient guide to the surgeon, as definite as motor spasm or hemianopsia.

Dr. Robert F. Weir, of New York, said that he had been always very handsomely treated by physicians, and he had been very handsomely treated to-night by Dr. Keen.

It had been his good fortune, commencing in 1883, to have practised what is now called brain surgery in ten instances: three times for tumors, three times for cerebral abscesses, twice for hemorrhage into the cerebrum where there was no external hemorrhage, once for epilepsy, and once for cerebral pain.

His last case of brain surgery, which had been made the subject of a paper by Dr. Seguin and himself in the *American Journal of the Medical Sciences*, is exemplified in the brain he would pass around for inspection. This case illustrates a point of some importance. It was so deep that in exposing the brain they were within an ace of not recognizing the tumor. It was only detected after some difficulty, deep in the brain substance. Bergmann has stated that an operation for the removal of a brain tumor should not be undertaken, first, when the tumor is large; and, second, when the patient is in a state of coma. Dr. Keen removed a tumor over four ounces in weight, and recovery took place. Mr. Horsley removed a four and a half ounce tumor from a man in a state of coma. So he thinks facts are at variance with this theory of Bergmann.

In the first case of tumor upon which he operated there was an error of diagnosis. The brain was opened and no tumor found. The bone was replaced, the skin was fastened, as advised by Horsley, and the patient recovered. The headache disappeared altogether, paralysis improved, and the patient lived two months. Another case was reported by Mr. Heath, of London, in which the tumor was attached to the bone at the base of the skull, and was not removed. The headache was relieved, paralysis improved, and epilepsy ceased for a time.

In cases of hemorrhage threatening life his plan is to do the operation as an exploratory one, take away a portion of the skull, and if he finds the blood-clot remove it.

He had gone over the brain a year and a half ago to see how much could be done in the way of surgery, to find out whether the longitudinal sinus and lateral sinus were things we could avoid. He found he could strip them up from the anterior surface of the skull to a goodly length. He had stripped the lateral sinus from its bed

to a distance of about an inch. He had stripped up the dura upon a living subject in ear trouble to a distance of one and a half inches. He had been able to raise up the frontal sinus until the anterior glenoid processes were exposed. He had been able to feel the foramen magnum. He had recently tapped a cerebral abscess on the under surface of the sphenoid bone just anterior to the foramen rotundum and ovale being led to these regions by necrosis. He believed one can reach very many portions of the brain providing our neurological friends give us information thereon.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting,

Held in Washington, September 18, 19, and 20, 1888.

TUESDAY—MORNING SESSION.

The Association was called to order, at 10 A.M., by THE PRESIDENT, D. HAYES AGNEW, M.D., of Philadelphia.

The first business was the delivery of

THE PRESIDENT'S ADDRESS.

(See page 316.)

DR. JOHN ASHHURST, JR., of Philadelphia, presented

A CONTRIBUTION TO THE STUDY OF EXCISIONS OF THE LARGER JOINTS,

based upon the records of 120 cases in which excision of the larger joints have been required; embracing 10 of shoulder-joint; 19 of elbow-joint; 40 of hip-joint; 51 of knee-joint; and 6 of ankle-joint excisions.

The large majority of the excisions had been performed without any of the so-called "antiseptic precautions," and the wounds had been dressed with simple oiled lint, or with lint saturated with dilute alcohol. For more than a year past, however, he had employed the antiseptic method in almost all his large operations, using also antiseptic dressings in their after-treatment, and with benefit; though as regards the ultimate welfare of the patients he has not noticed any gain. His best series of consecutive successes had been obtained under old methods, and he had not obtained any diminution of mortality by the adoption of the new. At the same time he had seen no ill results which could be attributed to the use of antiseptic measures; their use shortens the period of convalescence, and they have the merit on account of the infrequent change of dressings needed, that they greatly lessen the surgeon's labor.

DR. F. S. DENNIS, of New York, called attention to cases of excision of knee-joint for disease beginning in abscess in the condyle. In these cases the abscess cavity breaks down after recovery, leading to the production of deformity. In these cases he takes away all of the abscess-cavity, saws away a corresponding piece from the tibia, and brings the oblique surfaces together.

He has been in the habit of employing antiseptic dressings, removing the drainage tube on the third day, allowing the first dressing to remain five or six weeks.

In excision for injury, only enough bone to allow of free drainage should be removed.

SIR WILLIAM MACCORMAC, of London, had heard with some surprise that the tendency seemed to be to postpone excision of hip-joint until all other measures had failed. This is not the practice in regard to any other joint. In England the disposition is to perform the operation at an earlier period. Another point that he had not heard mentioned in the paper was in reference to the performance of operation in cases of old dislocation of the joint. He had performed this operation with success in old hip-joint dislocation, and reported the case of a sailor coming under observation three years after the occurrence of dislocation of hip-joint which had not been reduced. After the operation he could use the limb perfectly. He had been much interested in the recommendation of Dr. Ashhurst that a long incision be made to reach the subcrural bursa, a suggestion which he had not heard mentioned by any other surgeon.

DR. E. M. MOORE, of Rochester, had been somewhat surprised to hear a certain amount of indifference expressed toward the use of antiseptic surgery. He had found in his practice the greatest improvement follow the use of antiseptic dressing in these cases of excision. He cited several cases showing the result obtained.

DR. JOHN E. OWENS, of Chicago, agreed to the value of the wire cuirass, and referred to a modification of this apparatus consisting in the substitution of a frame of gas-pipe conforming to the outlines of the body. On this the body is supported by means of flannel stretched between the two sides of the frames. Extension may be applied, if desired, by the use of adhesive plaster, counter-extension being provided for by elevating the foot of the frame. After keeping patients in bed for thirty days, he tries to get them into the open air. He had found great advantage in keeping up a certain amount of extension after the patient was allowed to get up. By removing pain this enables the patient to move the joint more freely, and thus tends to far greater mobility of the part. He thought that there was no comparison between the antiseptic methods and those formerly employed.

DR. FRED. LANGE, of New York, referred to a class of cases in which the disease of the hip began in the tissue outside of the joint, the articulation becoming involved at a later stage of the affection. In these cases he recommended early operation with the hope that in this way necessity for opening the joint would be avoided.

AFTERNOON SESSION.

DR. NICHOLAS SENN, of Milwaukee, read a paper on

THE RELATION OF MICROÖRGANISMS TO INJURIES AND SURGICAL DISEASES.

At the present time no argument is required to show that many special conditions are due to the presence of bacteria. In regard to the so-called hereditary transmission of disease, the author held that the specific microbes of the specific diseases are transmitted directly from parent to child. In evidence of this he referred to cases of so-called hereditary osteomyelitis in newly born infants. In other cases, while this same origin may be inferred, we have as yet no direct evidence that such is the case. In regard to the question whether or not pathogenic microörganisms exist in the healthy body, while the results of some observers point in this direction, the results of others are opposed to the existence of pathogenic organisms in the healthy body. The conclusion was that under certain circumstances pathogenic

organisms might be present. There is proof of this in cases in which, after accidental injury, there is localization of these pathogenic organisms. Acute suppurative infectious osteomyelitis, following slight injury or exposure, was cited as an illustration of this fact. This localization is favored by certain anatomical conditions. The antagonism among microörganisms was being considered when the time of the author expired.

DR. ROSWELL PARK, of Buffalo, had done some work in this direction. He had examined pus from fifty-two sources, and presented a table showing the number of cases in which pyogenic bacteria were found. He had also prepared culture media with various antiseptics in different proportions, includlng carbolic acid, iodoform, iodine, naphthaline, hydro-napthol, resorcin, trichlorphenol, creolin, sulpho-carbolate of sodium, boric acid, perchloride of iron, antipyrin, antifebrin and quinine. Almost the only one of these antiseptic jellies as thus prepared which has prevented all growths was hydro-napthol, 1 : 100. This shows that hydro-napthol can be relied upon as an antiseptic. Many of the bacteria grow freely on iodoform jelly, 1 : 100. Those which grew abundantly on iodoform jelly grow slightly on oxide of zinc jelly 1 : 100. Oxide of zinc was considered a better solid antiseptic than iodoform. The author thought that our present knowledge permitted us to associate certain bacterial forms with definite pathological lesions. In conclusion he presented the report of a case of abscess of the face in which he found the micrococcus tetragens. So far as he knew, this microörganism had never before been found in phlegmon in man.

DR. WM. H. CARMALT, of New Haven, remarked that there was only one point to which he wished to refer, that was in reference to the alleged microbic origin of tumors. A great deal has been said in regard to the microbic origin of cancers and other tumors. He thought that the division of Virchow's class of granulomas into a class of tumors by themselves, known as infectious tumors, is correct. This class includes tubercle, syphilomes, lepra, lupus, actinomycosis, and myelitis. These growths should be taken out of the class of tumors and assigned to a class by themselves. He had been unable to convince himself that tumors proper have a bacteriological origin.

DR. N. SENN, in concluding the discussion, said that the diseases, enumerated in his paper, included only those in which the specific cause had been isolated, cultivated outside of the human body, and in which the injection of this culture produces identical lesions. When these three things are done we have furnished positive proof that the disease is due to specific germs. Another class of diseases had been alluded to in the paper in which there was reason to believe from analogy that the affection was due to specific germs, althongh the three conditions above referred to had not as yet been fulfilled. So far no one had been able to show that the supposed bacillus of syphilis was the specific bacillus. That it is a specific disease connot be doubted; that it is due to a microbe cannot be doubted, but to establish this positively, experimenters must do what Koch did before he announced the specific origin of tuberculosis.

He was firmly convinced from his observations that tumors in the true sense of the word were not due to microbes. He had made tumor implantations for many years in animals, and in justifiable cases in man, both close to the original seat of disease and at remote points, without obtaining the least evidence of the *microbic origin* of disease.

DR. W. W. KEEN, of Philadelphia, then read a paper entitled

THREE CASES OF BRAIN SURGERY.

The first case was one of removal of a large tumor from the brain; the second, trephining for old depressed fracture followed by epilepsy, with removal of underlying brain substance; the third was the removal of the cerebral motor centre for the left wrist and hand, for epilepsy. The three patients were presented, and his paper will be found in full in the October number of *The American Journal of the Medical Sciences*.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirteenth Annual Meeting,
Held in Washington, September 18, 19, and 20, 1888.

SEPTEMBER 18TH.—MORNING SESSION.

THE PRESIDENT, DR. ROBERT BATTEY, of Rome, Ga., called the Society to order.

DR. S. C. BUSEY, of Washington, then made an

ADDRESS OF WELCOME.

He alluded to the courtesy of the Boston Fellows in yielding their claim to the meeting, which had been appointed for their city, thus allowing Washington to entertain the Society at the same time with the other societies of the Congress, of which he felt that this Society should be a part. The object of that Congress was to unite men of high professional standing in the various departments of medicine from all parts of the country. The American Gynecological Society had many eminent members, and the Congress was incomplete without them. The Society had furnished thirteen volumes of transactions in the course of its existence, the character of which testified to the good its members had done, and to their advanced scientific standing.

DR. FORDYCE BARKER moved to reconsider the action which had been taken at the last meeting, and to accept the report of the committee which recommended

JOINING THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

This was seconded and carried unanimously.

DR. FORDYCE BARKER was appointed a committee to inform the executive committee of the Congress of this action of the Society.

DR. HOWARD A. KELLY, of Philadelphia, read a paper on

URETERITIS, ITS DIAGNOSIS AND SYMPTOMATOLOGY.

Catheterization of the ureters is a proceeding which is very useful in the diagnosis of disease of the ureters and the pelvis of the kidneys. Ureteritis is probably more common than has usually been supposed. While this method of procedure is of comparatively recent date the disease—ureteritis—was recognized years ago by Rayer and by Cruveilhier. It may be either descending or ascending; perhaps it is more commonly secondary and descending. It may also be ascending, following gonorrhœa and other diseases which affect the bladder. The ureter may also be diseased from the passage of renal

calculi, and as a complication of many forms of disease of the uterus and its surroundings. Hence it is important that the functions and the condition of the ureters should be carefully ascertained in any suspicious case. These and other facts suggest that more careful study of renal and bladder troubles is now in order for scientific gynecologists.

Examination of the ureters may be made by inspection, by palpation, and by catheterization. The first may be practised by splitting the vesico-vaginal septum at the proper level, then turning the opening into the vagina, as suggested by Dr. Thomas Addis Emmet. This may be done by pressure from without, or by pressure through the rectum, as suggested by Dr. Polk. By palpation the course of the ureter is to be followed by delicate touch, compression being exercised both through the abdominal wall and the vagina. If the ureter is dilated, its course may not infrequently be traced by this means. The method of catheterization is, however, the most practical, and the method of Pawlik, that of free-hand catheterization, is believed to be the most applicable. To perform this operation the patient is placed in the dorsal position, the perineum is retracted with Simon's speculum, and Pawlik's fine silver catheter is introduced into the bladder, the base being searched by it until the depression at the mouth of the ureter is felt, when the catheter will slip in, guided by the eye and the finger. Once in the orifice it may be pushed along as high as the level of the crest of the ilium, beyond which it is not safe to go.

In three cases of supposed bladder trouble he found that it was the diseased ends of the ureters which were causing trouble, the trouble disappearing when these were cured. Other cases were also narrated to prove the value of this method of procedure. The literature of this subject is not extensive and includes, in addition to the papers of Pawlik and Simon, the theses of Bonnet and Chaumont, and the recent paper of Silbermann.

DR. POLK found the subject one of great interest, and had given much time to its consideration, both upon the living and the dead subject. The method of examining the ureters which was most commonly referred to was Pawlik's. He had made many trials of it, but usually without much success. He had found more satisfaction in making a buttonhole fistula at the base of the bladder as recommended by Dr. T. A. Emmet, and then by suitable pressure the ends of the ureters could be made accessible. In palpating for the ureter it is to be remembered that it is between the line of the uterus and the brim of the pelvis. For a catheter he preferred one of broad curve like a prostatic catheter, and after this had been entered another instrument should be passed into the rectum, with which the onward course of this instrument in the ureter could be traced.

DR. H. D. BYFORD, of Chicago, had practised palpation of the ureters in one hundred cases, desiring to find a simple method of determining its course. If the uterus is taken as a centre and the finger in the vagina be made to radiate from it along the pelvic roof, a line would at length be reached where a gentle resistance of a cord-like body would indicate the presence of the ureter. This line having been determined, it would not be difficult after a little practice to find the mouth of the ureter and introduce a catheter, the catheter being guided by the finger in the vagina.

DR. W. H. BAKER, of Boston, thought that very few obtained sufficient skill to catheterize the ureters. He believed the method was of value, however, in enabling one to give a diagnosis as to the extent of diseases of the bladder, etc. It must not be forgotten, in all these manipulations, that there might be displacement of the ureter as had occurred in his experience.

DR. H. C. COE, of New York, found in three autopsies that pressure was exercised upon the ureters two inches from their endings by cicatricial nodules which were associated with uterine disease. This condition might have caused dilatation of the ureters which would have admitted of their determination by palpation.

DR. BACHE EMMET had found that as good results as by any method could be obtained as to determining the position of the ends of the ureters, by making a fistula in the base of the bladder then pressing in the median line of the abdomen, then varying the pressure to one and then the other side. He believed that ureteral trouble complicated various uterine troubles, and that a diagnosis of pelvic disease could hardly be considered complete until the condition of the ureters was known. He did not believe that disease of the ureters was a very common complication of bladder disease.

DR. KELLY, in closing, detailed the experiments of Tuchmann, Silbermann, and others in catheterization, and showed the value of the operation. He thought disease of the ureters could not be called uncommon, that it might be due to inflammatory deposits, displacements, etc., and that examination of these organs was eminently simple and practical.

DR. THOMAS ADDIS EMMET, of New York (by Dr. Duncan Emmet), read a paper entitled

CAUSE AND TREATMENT OF URETHROCELE.

This condition is generally considered as due to a loss of support in consequence of laceration of the perineum, but it is never found after first labors unless the rupture has extended through the sphincter ani. It always exists after serious double laceration of the cervix in consequence of severe labor, which may have been either rapid or tedious. The former is the more common cause, the latter sometimes acts as a cause when ergot has been given or when the labor has been instrumental. The trouble is usually in the lower or vaginal part of the urethra. In some cases the accident is doubtless prevented when a few ounces of urine are in the bladder during the expulsion of the head, the urine acting as a cushion and only being discharged as the space is required. This is contrary to the long accepted dictum that the bladder must be empty when the head is delivered. The laceration may be transverse or longitudinal, and a few fibres or many may be ruptured. There is seldom a rupture through the vaginal mucous membrane. Urethrocele must be differentiated from the thickened condition of the urethra in which there is no rupture. In urethrocele the length of the urethra is diminished, a pouch being formed in which the urine collects. Serious reflex symptoms may be excited by such a condition as is shown in a very aggravated case narrated in the paper. He repeated his opinion expressed in his paper before the Society in 1882, as to the value of the buttonhole fistula operation, which is the means by which urethrocele also may be effectually treated.

Dr. Priestly, of London, referred to a paper written by him in 1869, in which he referred to sebaceous cysts of the urethra which he thought formed a condition somewhat analogous to that referred to by Dr. Emmet in his paper. He thought such conditions as Dr. Emmet treated of might be due to other causes than labor; for example, a sebaceous cyst of the urethra which he had seen had arisen entirely independently of labor.

Dr. Skene, of Brooklyn, thought that cystocele and urethrocele were very apt to be confounded. In his experience it was not the lower portion of the urethra which was apt to be involved as the result of severe labor. Complete dislocation of the urethra, the latter being torn from its attachments at the pubic arch, was a more common accident of labor than the sacculated condition to which Dr. Emmet referred, and he believed the longitudinal or transverse ruptures of the fibres of the urethra to be relatively rare. The buttonhole operation would be of no use in cases of dislocated urethra, but for the sacculated condition it would apply. Bozeman had described the dilated condition of the urethra following labor ten or fifteen years ago, and had suggested the opening of the urethra as a means of relief.

Dr. Lusk, of New York, had found Emmet's operation very efficient in a very troublesome case which had long been under his observation, and had, finally, been cured by Dr. Emmet. Since then he had performed the operation in several cases with great satisfaction.

Dr. Kelly referred to a case of urethrocele which had been reported by Dr. Skene Keith, and upon which he had performed Emmet's operation with marked success. Urethrocele should be differentiated from false urethrocele or pouting of the urethra, which was often caused by straining in urination.

Dr. Sutton, of Pittsburg, read a paper on

THE TREATMENT OF PELVIC ABSCESSES.

He referred to those abscesses which often resulted from pelvic cellulitis, though this condition did not usually terminate in abscess. There are septic and aseptic forms of this condition; in other words, there is one class of cases in which the septic element is well marked, and another in which it is not well marked. Sepsis may be due to dirty instruments, dirty fingers, etc., during labor, or from inoculation by the lochial discharge. Septic material may also be introduced in other ways and set up inflammation in the cellular tissue, the lymph vessels or the veins. Peritonitis may also accompany such conditions. Abscess may also occur in virgins and in those who have passed the menopause, without any appreciable septic origin. Such cases are commonly called idiopathic; they may arise from exposure to cold, sudden stoppage of the menses, etc. The treatment for such cases is usually hot douches, opium and poultices. He believed that a blister was better than poulticing, or an ice-bag might be applied to the abdomen. If there were tympanites, he prescribed an enema of hot soapsuds, or a dose of sulphate of magnesia. Of the febrifuges he preferred quinine, though he had had no experience with mercury, the salicylates, etc., for this condition. In spite of all care septic symptoms would sometimes appear, and bye and bye there would be fluctuation in the rectum, the vagina, or the iliac region. To evacuate the pus he used a knife, a trocar, or the actual cautery, irrigated the cavity, and then introduced a drainage tube. Accompanying conditions were usually hard masses in the pelvis, fixation of the uterus, and the pressure of pus in the vagina, rectum, or bladder. The most favorable location for evacuating the pus was the vagina. Pus in the Fallopian tubes was best treated by laparotomy, the same being true of large abscesses elsewhere in the pelvis. If a sinus opened upon the skin counter-openings should be made in the vagina, and drainage effected by this avenue if possible. The entrance to the sinus should be dilated, and the sinus curetted and irrigated. If the opening were in the rectum it should be dilated and the cavity washed out with bichloride solution 1 : 1000, the rectum having first been irrigated. The general health of patients with such conditions often rendered the prognosis bad. Bitter tonics, alcohol and malt liquors should be given, and the patient should be fed as freely as circumstances will admit. The cases not infrequently end in tuberculosis and death.

Dr. Goodell, of Philadelphia, had never seen pelvic abscesses arise from gonorrhœal poisoning, though often from septic influence of other character. It was not rough treatment during operations which led to these abscesses, but uncleanliness. Such abscesses in virgins are associated with the catamenial period, and are aseptic. He preferred to open such abscesses with a blunt instrument, such as a pair of scissors, dilating and then draining. If the opening be in the rectum, it is better to insert a probe in the direction of the vagina and then make a vaginal opening. If the rectal opening is enlarged, there is danger that feces and poisonous gases may enter the sinus, and then poisoning will result. If the abscess can be felt *per vaginam*, an opening should be made in the vagina and a drainage-tube inserted, but some abscesses never become large enough for such treatment. If laparotomy be performed, and the conditions are such that the wound cannot be well drained, it is better to make another opening into the vagina and drain in that direction. For irrigating sinuses in the rectum, he preferred permanganate of potassium to the bichloride. A vaginal opening is always to be preferred for drainage, if it can be secured.

Dr. William H. Parish, of Philadelphia, thought that abscesses in the pelvic areolar tissue after labor were almost always septic, and should not be operated upon early. An aspirator should never be used for such abscesses, except for purposes of exploration, and he seldom used them for any purpose. If the abscess pointed low in the vagina, a superficial incision should first be made, then a grooved director should be thrust in, and the incision enlarged by cutting upon this. It is not safe to wait until the abscess becomes a tumor sufficiently large to be apparent in the abdomen. In some cases he had succeeded in following the track of the abscess with his fingers, enlarging and breaking down the cavity as he proceeded, then draining, without opening the vagina at all.

Dr. T. Gaillard Thomas, of New York, differed with the reader in respect to treatment. He recognized three varieties of abscess: one described by Bennett as an inflammation of the tissue between the layers of the broad ligament, a second occurring in the tissue posterior to the uterus, and a third in the tissue anterior to the uterus, between the uterus and the bladder. Yet another form was that which was associated with pyosalpinx, and may frequently be reached by a vaginal incision, thus avoiding

laparotomy, which must always involve the greater danger. The sooner these abscesses are opened the better for the patient. Without being too definite, it is safe to say that a phlegmon which has existed for a month should be explored. It is not safe to wait for fluctuation, for that may never appear. There is a decided difference in the rapidity of development of abscesses which are associated with parturition and those which arise from other causes; the former develop rapidly, the latter slowly. It is not wise to wait for the appearance of constitutional symptoms before operative treatment is begun. He believed there are only two passages by which pus should be evacuated from the pelvis—the vagina and the abdomen. One should never open into the rectum or bladder. His method of operating upon the different forms of abscess was then described. If the abscess points at the abdomen, a long incision should be made along Poupart's ligament, which should be irrigated and drained, but the vaginal opening should always be preferred if possible.

DR. T. GILL WYLIE, of New York, thought that the theory of cellulitis as a cause of abscess had been greatly overrated. Excluding acute abscesses arising soon after labor, he believed that almost all pelvic abscesses originated in salpingitis and ovaritis. He believed that too much stress was laid on treating such abscesses by the vagina, and too little by laparotomy. The disease was not usually treated radically until the abdomen had been opened and the tubes, which were the centre of the disease, removed. Should the abscess point in the vagina it may be opened there, but, frequently, one gains a clearer knowledge of the case and is able to treat it more intelligently if the abdomen also is opened, and the condition thoroughly investigated.

DR. POLK, of New York, found in 100 cases of pelvic abscess that had been attributed to cellulitis that such was not the cause, but that the cause was salpingitis, hence he had abandoned the common theory and gone back to that of Bernutz, which regarded tubal disease as the most frequent cause. With regard to the influence of septicæmia in such cases, the same principles obtain with respect to the uterus which hold in respect to other parts of the body. In those cases in which the abscess can be treated outside of the peritoneal cavity, laparotomy is not indicated, in all other cases laparotomy is urgent, that the condition may be radically disposed of and pyogenic membrane removed. In all the cases which the speaker had investigated since his change of belief he had found pyosalpinx, and for such a condition laparotomy is the only proper treatment. Should the abscess point in the vagina there is no objection to opening it there and draining.

DR. H. D. BYFORD, of Chicago, objected to the teaching that pelvic abscesses always resulted from pyosalpinx. He had not found that such abscesses point at the skin or in the vagina alone, nor even in the majority of cases. His plan was to open them by the most direct route, whether that might be into the bladder, or the rectum or elsewhere. The greater number of his cases had opened into the rectum, and most of the patients got well. They presented symptoms of diarrhœa, and examination would show pus in the discharges. He thought that there more recoveries from cases which opened into the rectum than from those which opened into the vagina.

DR. HOWARD A. KELLY had found that good results followed opening of pelvic abscesses with Paquelin's cautery. He had also used the method described by Dr. Goodell, the cavity being opened with blunt scissors, and the opening enlarged as the scissors were withdrawn. He did not consider it necessary to enucleate the walls of an abscess, as suggested by Dr. Polk, if only antiseptic measures were used to encourage the closure of the cavity.

DR. JOHNSTON, of Danville, believed that a better understanding of this subject would be obtained if the condition were compared with croupous pneumonia, with which it presented strong analogy. He had found no cases in which chronic cellulitis *per se* existed in the pelvic cellular tissue. Such an inflammation should follow the same law which it observed in the cellular tissue elsewhere, which was to undergo resolution after a longer or briefer period of time. He believed that the trouble in pelvic abscesses was primarily in epithelial structures, the natural development of which had been interfered with. The *rete mucosum* was the part which was involved—that is, the inflammation was primarily in the ovaries or the tubes.

DR. BALDWIN believed that pelvic abscesses were always due to inflammation of the tubes and ovaries, and that the only correct way to treat them was by laparotomy. By so doing, we could get directly at the diseased structures, and were not treating them in the dark. Even if the abscess can be conveniently reached by the vagina the period necessary for a cure is a long one, a mass of hardened tissue being left, which is long in disappearing. Removing the diseased structures by the abdomen a radical cure would be quickly effected.

DR. REAMY, of Cincinnati, admitted that the origin of the disease might often be in the tubes, but was unwilling to concede that it should never be treated per vaginam. Besides, it must be remembered that it was not always desirable to take away the possibility of offspring if the disease could be cured without unsexing the patent. He was positive that cases could be cured by vaginal incision and be able to bear children subsequently, as was proven by an interesting case which was narrated.

DR. SUTTON, in closing, recapitulated the various means by which infection might take place, and concluded that the old views, which assumed that pelvic abscess was caused by cellulitis, were passing away.

CORRESPONDENCE.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

(*From our Special Correspondent.*)

I WRITE to you in the midst of work now going on in the various societies constituting the first meeting of the Congress of American Physicians and Surgeons; which societies, by the way, some will persist in calling "Sections," recollecting, perhaps, the constitution of somewhat similar bodies in the past, and finding it difficult to realize the distinctive features of this Congress. As I desire you to have an early report for your next issue, of course I cannot embrace all the salient features of the Congress.

Rain, rain, outpouring and persistent in the beginning of the week, promised ill for the comfort of those who

came to Washington to attend the Congress, and even on the night preceding its opening, when so many assembled around the banquet table to welcome the foreign guests, the bad weather still persisted. But Tuesday opened bright and clear, and now, with the thermometer at 80°, and with pleasant air stirring, the atmosphere is quite bearable for those who do not make undue exertion. The breezes come from those flats which Dr. Busey says in his address of welcome, have for forty years furnished him with life-giving air, with every southern wind, and have not furnished him with the malaria of the correspondent or casual visitor—whose excesses, under another name, unlike the rose, would be better identified.

The Committee of Arrangements selected an admirable location for the Congress, and for a number of the societies, in the building erected by the Grand Army of the Republic; high, well ventilated, and with capacious rooms well adapted for the purpose in their acoustic properties. It is directly opposite to Willard's hotel—the place for registration and headquarters. It is, moreover, in full view of, and a short distance from, the celebrated Potomac marshes, and the Government improvement of the same, but the American Climatological Society—being located on one of the lower floors—unfortunately did not get the full benefit of their surroundings.

As these various meetings recur year after year, in the heat of the summer and early fall months, one cannot help asking the old question, why medical men will make themselves so uncomfortable at these seasons, to come back from cool summer resorts, with their early hours, simple diet, and light clothes, to the hot, dusty streets and hotels of a city, put on dress-suits, eat and drink what does not agree with them at the best of times, and keep late hours, scarcely seems in accordance with the canons of hygiene. New York, or even Boston, is not attractive at this season, much less Washington; while in a few weeks from now all of these cities will be at their best. Perhaps there is, however, some retributive justice in it; the school children who have had to come home from the seashore and country, to drone over their tasks in the hot school-room, have wondered why their family physician does not exercise his authority and come to their aid; perhaps they take some pleasure in seeing how the doctors like it themselves.

The banquet was really the affair which opened the Congress, although it was intended to be unofficial in its character, so far as it was possible under the circumstances. It preceded the Congress, and was a spontaneous welcome to the foreign guests by those who wished to participate, and to meet each other socially. It was served in the large dining-room of Willard's hotel.

At one end of and across the hall was a table at which were seated Dr. S. C. Busey, Chairman of the Committee of Arrangements, and at his right and left, respectively, Prof. von Esmarch, Sir Spencer Wells, Dr. William Pepper, Dr. John S. Billings, Sir William MacCormac, Dr. William H. Draper, Surgeon-General Moore, U. S. A., Surgeon-General Browne, U. S. N., Dr. D. Hayes Agnew, Prof. Annandale, Prof. MacCullum. At either end of this table were long tables extending down the length of the dining room at which the remainder of those present were seated; they were all medical men and honored the occasion by their presence, but there were far too many to name in a letter like this. Prof. Ferrier, Dr. Ord, Mr. Horsley, Mr. Durham and Dr. Pye Smith were among the foreign guests interspersed at the tables with their American colleagues. The menu was very prettily engraved in the usual form, and embraced the usual variety and mixture of English and French terms, which have become so familiar to us from long usage. A band of music played at intervals during the evening.

There were but very few toasts, some six or eight short speeches being made. Prof. von Esmarch gave a very pleasant address partly in English and partly in German, and Sir Spencer Wells and Mr. Ord made some very acceptable remarks. The others were mostly by our American physicians in response to calls. All who participated spoke of the occasion as a very enjoyable one, and when the formality was over and cigars were lighted, neighbors found very agreeable company in each other.

On Tuesday work began in earnest. The various Societies appeared to be well attended, by the members, there were few outsiders present, and each Society accordingly was more or less represented in the degree of the size of its roll of membership. The Surgical Society was quite full, the Society of Physicians was well filled, while, on the other hand, the Physiological Society had a scant attendance; that, however, may be accounted for in more ways than one, it was its first annual meeting, and it held its sessions in the Army Medical Museum, away from the city centres occupied by the other Societies. A great deal of honest, earnest, and satisfactory work was done in the Societies, which will, of course, be reported in due time, and through the proper channels.

The Congress organized as a body by Dr. Pepper calling it to order, in which, among other things, he stated that the idea of a conjoint meeting had taken definite shape before any preparations had been made for the meeting in this country of the International Medical Congress, but had been deferred so as not to interfere with that meeting. He expressed himself as being, with a large proportion of the members, warmly attached to the American Medical Association, and determined to exert influence to maintain and promote its success, and thought the plan of organization of the present Congress did not interfere in the least with that Association. At the close of his address he introduced Dr. Billings as the President. Dr. Billings did not make any formal address, as on Thursday night he closes the Congress by his address, but, after a few words introduced Dr. Busey who, as the Chairman of the Committee of Arrangements, welcomed the members. Dr. Busey's address was very well received and his labors were evidently highly appreciated, as they certainly deserve to be, his task having been a very onerous one. Rules for organization were submitted and accepted, one important rule being that the Congress meet triennially in Washington.

Tuesday evening the subject of "Intestinal Obstruction in its Medical and Surgical Relations" was before the Congress, and papers were read by Dr. Reginald H. Fitz, of Boston, and Dr. Nicholas Senn, of Milwaukee, and it was intended that Dr. William Pepper, Dr. J. Collins Warren and Dr. Thomas G. Morton, with others, should take part in the discussion, but the papers read took up so much time that, at their close, Dr. Pepper, when called upon, very happily expressed the desire of hearing some of the foreign medical men present upon

the subject, and he was gracefully seconded by the President who called up in turn Dr. Durham, Dr. Ord, and Mr. Annandale. Dr. Warren having also followed Dr. Pepper in yielding the floor.

This proved to be a very enjoyable part of the discussion. Dr. Fitz's paper was carefully prepared and well received, and Dr. Senn illustrated his paper with valuable pathological specimens, and was very eloquent upon the subject of the ileo-cæcal valve, etc.; but the foreign guests, with their earnest and off-hand treatment of the subject, added very much to the interest shown. They were all men who have paid special attention to the subject. Dr. Durham especially, having, as he stated, furnished Quain with his article on the subject for his Dictionary. Dr. Durham made quite an address and was very forcible in his remarks; and while he complimented highly the American profession, and expressed his great pleasure at his reception here, like a true Britisher, he did not hesitate to contradict forcibly some views that had been previously expressed. Dr. Durham is tall and spare, with a clear-cut, pleasant face, and has the appearance of being an earnest and hard worker.

Dr. Ord, who succeeded him, was a smaller man, rather inclined to be stout, smooth face, muddy complexion, and a fair type of the Englishman, with a very genial, comfortable manner and expression. His remarks were easy and to the point. Dr. Ord is a prominent London practitioner and is connected with St. Thomas's Hospital.

Mr. Annandale, who was the last speaker, made but a few remarks, having only just arrived in Washington, his steamer having been delayed by its encounter with the recent cyclone.

At the close of the Congress the members passed across to Willard's, where a very satisfactory collation was ready for them, and the remainder of the evening passed in eating a little and smoking and talking a great deal. Everybody was in a good humor and glad to see each other, and matters were freely discussed. One pleasant feature of the evening was the presence of so many of the local profession and their evident intention to enjoy themselves and help make the occasion a pleasant one for the visitor.

Professor von Esmarch is, of course, one of the most distinguished of the foreign visitors, and is of interest also to the general public as being the husband of Princess Henrietta, of Schleswig-Holstein, who is also aunt to the present Empress of Germany. He is of medium height, with a full, gray beard parted in the middle, and has something of a military bearing. His manner is very pleasant and cordial.

The discussion of Wednesday evening on Cerebral Localization in its Practical Relations was looked forward to with a great deal of interest, especially as Dr. David Ferrier and Mr. Victor Horsley were to take part.

This evening a reception will be held at the Army Medical Museum, and it promises to be very enjoyable. The hall of the library is being draped in a very artistic manner.

Before closing, I must mention one feature which is very striking—not a drug vender, instrument dealer, book or medical journal agent, is to be seen about the Congress, registrating rooms, or any of the Societies, nor are there any circulars of the same distributed.

WASHINGTON, THURSDAY, SEPTEMBER 19TH.

NEW INVENTIONS.

A NEW FORM OF GALVANO-CAUTERY SNARE, ETC., FOR NASAL, THROAT, AND EYE-WORK.

BY JOSEPH A. WHITE, A.M., M.D.,
SENIOR SURGEON OF THE RICHMOND (VA.) EYE, EAR, THROAT, AND NOSE INFIRMARY.

IN the treatment of throat and nose affections the galvano-cautery is of such general utility that any improvement in the apparatus used for its application must necessarily be of interest to all who are engaged in this work. Most of the handles I have seen are too heavy to admit of rapid and skilful manipulation; and in using the snare and wheel attachment, for removal of polyps, growths, etc., in the nose and post-nasal space, I have found it clumsy and cumbersome, usually requiring *both hands*, if we wish to regulate the electric current and tighten the loop at the same time. To obviate these difficulties I have had a new form of handle, with snare attachment, made for me by Mr. Otto Flemming, the well-known electrician, of No. 1009 Arch Street, Philadelphia, which, after nine months' daily use, I can safely present to the profession as superior to any other I know of. This handle, with canula and snare attached, is represented in the accompanying cut.

The length of the handle (A) is 14 centimetres, its breadth 1 centimetre, its width 6 millimetres and its weight less than one ounce. Set into the handle along its whole length is a small ratchet on which runs the slide (C), to which are attached the ends of the platina loop passing through the canula (D). The slide (C) which catches on the ratchet, as it is pulled down, can be instantly released by pressing a spring at its lower part and the loop thereby loosened, if necessary. At the upper end of the hand there is a movable joint, into which the canula and electrodes are fastened, which can be fixed at any angle by the fixation screw (E).

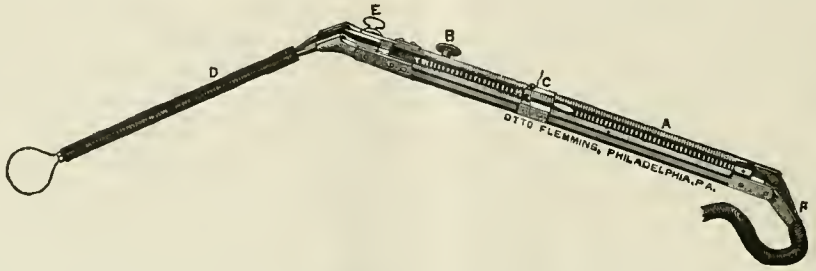
The conducting cords are fastened together by a spring (F), which can be attached or detached from the handle instantly, thus doing away with the two fixation screws, usually used for this purpose. At B is a spring and button, for current breaker.

The advantages of this handle and snare are apparent. It is so light and delicate, it is more easily manipulated, and with the slide and ratchet the snare can be more rapidly applied to growth. The movable joint at the top, by which the snare and electrodes can be regulated at any desired angle, is, in many cases, a decided advantage, and the doing away with the binding screws, at the bottom, an economy of time.

In post-nasal work this instrument is of great value, because it can be used with one hand, whilst the other holds the mirror in the throat, the thumb manipulating the slide (C) carrying the snare, and the forefinger regulating the current, by the button (B), then turning it off and on, as may be needed, whilst watching the operation in the mirror. With my *Post-nasal Speculum* (Self-retaining Palate-retractor) in position, the mirror in the left hand, and the handle in the right, every step of a post-nasal operation can be seen as easily as the removal of a growth from the skin.

I not only use it as a galvano-cautery snare, but also as a *cold* snare. Since I have had it I have almost en-

tirely discarded the Jarvis's and similar snares for infranasal operations. It is as light and delicate, as easily applied and the *cold* snare can, in a moment, be converted into a *hot* one, if desired. For removal of nasal polyps it is superior to any instrument I have ever used. If it captures the polyp about the *body*, gentle traction will usually break the pedicle, and then it can be cauterized; if about the *neck* the current can be turned on and



the polyp removed and root cauterized at the same time. For lower turbinated hypertrophies, it is superior to Jarvis's snare, as no transfixion with needles is ever necessary. If it does not grasp them as a *cold* snare and slips off, if the loop is pressed down about the hypertrophy, and the current turned on, a groove is made by the *hot* snare, and the loop firmly fixed by running the slide on the ratchet. The operation can then be completed with cold or hot snare as preferred. I have used it to remove turbinated hypertrophies, nasal polyps, growths from the septum and post-nasal space, including two fibroids from the vault of the pharynx. I have also removed adenoid tissue by its help, when the third tonsil was sufficiently large.

I also have a snare attachment for laryngeal work and I have successfully removed papillomata with its help. Every kind of electrode used in throat and nasal work, for linear cauterization, destruction of granulations, cauterizing ulcers, etc., can be attached to the same handle. I have half a dozen or more kinds. Moreover, I have had made for it several tiny points for *eye-work*, such as cauterizing ulcers of the cornea, destroying granulations of the conjunctiva, grooving the tarsal cartilage in entropion, etc. In this application the handle is held as a penholder and almost as easily manipulated.

410 EAST GRACE STREET, RICHMOND, VA.

NEWS ITEMS.

Transmission of Syphilis.—The Paris law courts have just decided a case in which the parents of a child suffering from hereditary syphilis, which communicated the disease to its nurse, have been condemned to pay £80 damages to the woman. Each of them has also had to pay a fine of £4. The decision was grounded on the clauses of the Code providing for the punishment for wounds or other injuries inflicted through carelessness. It appears that the parents were aware of their child's condition.—*British Medical Journal*, September 1, 1888.

Saccharin not a Food.—The Consulting Committee of Public Hygiene, in France, has officially approved the report of MM. BROUARDEL, POUCHET, and OGIER, relating to the use of saccharin. These gentlemen conclude that saccharin is not a food and cannot replace sugar. Its use retards the digestion of starchy and albuminous substances. It is extremely liable to augment intestinal troubles, and even cause those troubles which it was originally intended to cure. Its use is, of course, too recent to formulate decided views; but it seems to be settled that its effects on the digestive organs are harmful. —*L'Union Médicale*, August, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 11 TO SEPTEMBER 17, 1888.

PAGE, CHARLES, *Colonel and Assistant Surgeon-General, Medical Director of the Department*, will proceed to Forts Riley and Hays, Kansas; Post near Denver, and Forts Crawford, Lewis and Lyon, Colorado, and return, on public business. The travel enjoined is necessary for the public service.—*S. O. 114, Headquarters, Department of the Missouri, Fort Leavenworth, Kansas*, September 7, 1888.

NORRIS, BASIL, *Lieutenant-Colonel and Medical Director*, will proceed to Fort Klamath, inspect the Medical Department at that post, and, upon completion thereof, return to these Headquarters. —*S. O. 103, Headquarters, Department of the Columbia, Vancouver Barracks, Washington Territory*, September 3, 1888.

CALDWELL, DANIEL G., *Major and Surgeon.*—Is granted two months' leave of absence, from September 14, 1888.—*S. O. 210, A. G. O.*, September 10, 1888.

AINSWORTH, FREDERICK C., *Captain and Assistant Surgeon.* —Will, by direction of the Secretary of War, proceed to Kennebec Arsenal, Augusta, Maine, on public business connected with the Medical Department of the Army; on completion thereof, will return to his station in this city.—*S. O. 211, A. G. O., Washington, D. C.*, September 11, 1888.

BANISTER, JOHN M., *Captain and Assistant Surgeon* (U. S. Army).—Is granted two months' leave of absence, with permission to apply for an extension of one month, to take effect when his services can be spared.—*S. O. 211, A. G. O.*, September 10, 1888.

By direction of the Acting Secretary of War, NORTON STRONG, *Captain and Assistant Surgeon*, will report in person, at 11 o'clock A. M., October 18, 1888, to Brigadier-General John R. Brooke, President of the Retiring Board in session at Omaha, Nebraska, to give testimony in a case pending before the Board. Upon completion of this duty, he will return to his proper station.—Par. 9, *S. O. 212, A. G. O.*, September 12, 1888.

JARVIS, NATHAN S., *First Lieutenant and Assistant Surgeon.* —Is granted one month's extension of leave of absence, on surgeon's certificate of disability.—*S. O. 210, A. G. O.*, September 10, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 15, 1888.

LUNG, GEORGE A., *Assistant Surgeon.*—Ordered to the Receiving Ship "Vermont," Navy Yard, New York.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, SEPTEMBER 29, 1888. NO. 13.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THE PRESIDENT'S ADDRESS.

Delivered September 18, 1888.

THE CLIMATE AND ENVIRONMENT BEST SUITED TO OLD AGE IN HEALTH AND DISEASE.

BY A. L. LOOMIS, M.D.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE IN THE UNIVERSITY OF THE CITY OF NEW YORK.

AGAIN the pleasant duty devolves upon me of welcoming you to an Annual Meeting of the American Climatological Association. Our fifth anniversary finds us a strong, well-organized, working body. Our records for the past four years show much good work done, and the programme for our present meeting is a guarantee for the future.

Three years ago, under similar circumstances, it was my privilege to say that this Association was organized that representative medical men from different sections might come together and, from their combined views and experiences, endeavor to determine the therapeutic value of the various localities which were claimed to have the power of arresting or curing chronic diseases of the respiratory and vascular organs; and I then expressed the hope that in the near future it would be a place where good workers could meet on a common ground with no medical politics or ethics (except such as one scientific worker is always willing to accord to his fellows), and there discuss in a scientific spirit those questions in etiology and therapeutics which are now engaging so largely the mind of the profession.

My hopes and prophecies have been more than realized, for our Association has not only made a scientific record for itself, but it has stimulated the profession in this country to harmonious work in the important field which we occupy, and has given such a prominence to climatology and hydrology in this country that our springs and health resorts are being placed on a more intelligent and scientific basis, so that English and French physicians are already sending their phthisical and rheumatic patients to those American resorts which have received the sanction of this Association.

The fact that the subjects for investigation and experimentation, as well as the clinical studies which come within the scope of our labors, are becoming more and more important each year, and in all parts of the world are engaging the attention of some of our best medical workers, should stimulate this Association to a still higher standard of work.

With these few words of congratulation as an introduction to that which is before us, I will invite your attention to some thoughts connected with the climatology of age.

In studying the therapeutics of climate, and its effects upon diseased processes, one soon realizes that *age* is a factor which enters very largely into the climatic problems which we are endeavoring to solve—much has been written on the climates best suited to the management of different diseases, but the literature of *the climate and environment best suited to old age in health and disease* is meagre and conflicting. I have thought that it might not be without interest, if I should at this time give you some of the results of my experience and observations on this subject.

The life of man is naturally divided into four periods—infancy, youth, manhood, and old age; each period has its mental and physical characteristics, each its diseases, and each its therapeutics. There are conditions of environment and climate which not only are especially adapted to the development and vigor of each, but which influence largely the immunity from those diseases liable to occur at these different periods, often arresting or curing them after their development.

Most men begin to show signs of decay between fifty and fifty-five, while the favored few retain the vigor of manhood at seventy. Original conformations, heredity, habits of life, climate, anxieties, and temperament, unquestionably influence very greatly the commencing period of old age. Some men are old at forty, while others are young at seventy.

There are certain physiological and anatomical characteristics of old age, which especially interest us in the study of those conditions which are best suited to the fuller development and prolongation of life. The more prominent of these are: defective secretions and excretions, imperfect metabolism, feeble respiration, which interfere with complete oxidation, the excretory organs being more or less weakened withdraw from the body less perfectly the results of tissue metamorphosed. The nutritive functions, digestion and assimilation, are imperfectly performed. The arterial changes give a feebleness to cell nutrition which shows itself in the visible signs of advancing age. "The bones, the cartilages, the membranes, the flesh, the skin, and every fibre of the body becomes more solid and dry." But long after the decay of corporeal vigor, the understanding and the higher powers of the mind preserve their energy and precision.

It has been said that no sooner does man arrive at his full maturity than he begins to decline. This may be true of his animal life, but not of his intellectual. It does not seem consistent with the design of the Creator that all growth in man should cease with the attainment of his maturity. It is evident that his intellectual powers do not attain their highest development with the completion of his body growth; for we often find that those qualities by which "he rules the world, as reason and judgment," are most active after his body decline has begun. Some of the most brilliant and powerful productions in literature, science, and art have been the work of old age. Disraeli claims that the age of three score and ten is a most powerful one for writing.

There have been many striking examples, which prove how often the mind resists the body decay, and that the age of the physical organism does not necessarily enfeeble the mental powers. We can but believe that an intelligent care of the body, after it has reached its period of maturity with healthful exercise of the mental faculties, would make old age, not a period of decline, but a period of mental power and vigor. One has said "that among men of genius there is no old age." I would, therefore, make as strong requisites in the conditions which shall prolong and render healthful old age, a climate and environment which shall favor and tend to stimulate the mental activities.

To one studying the physiology of old age, it becomes apparent that the gradual and progressive impairment of the functions of organic life and the anatomical changes which precede or accompany their failing activity, can only be retarded by furnishing "to each organ, or each system of organs, their appropriate and natural stimulus without undue excitement or depression." There is unquestionably a hygiene of old age, which, if carefully studied and intelligently observed, would prolong its physical vigor and mental power. I have the opportunity of daily watching and studying one who has reached the ninety-fifth year; all her physical and mental powers retain their activity, her pulse has the characteristics of youth, her skin is as fair and soft as that of a girl of eighteen; in fact, the changes of old age, as usually met with in persons from seventy to eighty, have not taken place in her. This case, as well as others of great age that have come under my observation, have taught me that the absence of senile changes is the chief reason of their attaining their age, and have convinced me that if the hygienic laws of age were more carefully studied and observed, not only would greater age be reached but they would be far more vigorous and useful.

I believe that the progressive degenerative changes in structure and failure in functional activities may so adapt themselves to each other as to produce an old age which may be as healthy as mature life. One of the most important of these hygienic laws is that the brain shall be stimulated by a pleasurable employment of its faculties, care being taken that it shall not be enfeebled by prolonged and continuous labor, this, together with healthful exercise, has a salutary influence on the entire system, while idleness and listlessness lead to senile atrophy of both mind and body. It is most essential also that the diet shall be simple and nutritious, as moderation in eating and drinking is indicated by the diminished capacity of the stomach, its reduced muscular power, and its declining nervous energy. So long as it can be accomplished without fatigue, exercise in the open air is another condition which promotes longevity, for it is evident that the perfect performance of respiration is stimulated by moderate exercise in a pure atmosphere and insures the highest state of oxidation, which is important to the healthful nutrition of the aged.

There is perhaps nothing that has a more prejudicial effect upon the aged than cold; their greatly diminished power of generating heat and of preserving it, renders it necessary for their greater activity that they should live in a more equable climate, in localities that are sheltered from the north and east winds. Dr. Farr, in the *Third Annual Report of the Registrar-General of England*, states "that the rate of mortality rises in the aged, as the mean temperature falls. When the mean temperature of day and night falls a degree or two below 32° F., the rate of mortality immediately rises, and the effects of the low temperature go on accumulating and continue to be felt for thirty or forty days after the extremes of cold have been passed. I have noticed that the extremes of heat seem to be as hurtful to the aged as extremes of cold, and should be equally avoided."

Another essential to healthy old age is personal cleanliness. The skin which becomes unfitted for carrying off effete matters from the system, should have its activities stimulated by frequent warm alkaline baths followed by frictions to the surface.

The ancients showed great familiarity with the principles of hygiene of old age. Cicero in his "Senectute" says that we must make a stand against old age and its faults must be atoned for by activity. We must fight against disease, and in like manner against old age. Regard must be paid to everything healthful. Moderate exercise must be adopted, so much of meat and drink must be taken, that the strength may be recruited and not oppressed. Nor, indeed, must the body alone be supported, but the mind and soul much more, for unless we drop oil on them as a lamp they are extinguished by old age. Our bodies, indeed, by weariness and exercise, become oppressed, but our minds are rendered buoyant by exercise.

With these thoughts before us in seeking climates and environments suited to the development and prolongation of old age, we naturally reach the following conclusions:

First. That healthy old age thrives best and is most vigorous when it can be passed in moderately warm climates. To accomplish this, a change of residence once or twice a year becomes a necessity. For some reason which I am sure is not based on experience or observation, it has come to be a common belief that old people should pass their last days in one locality, that they are so wedded to their homes and surroundings that any change affects them unfavorably; so prevalent is this opinion, even among medical men, that the usual professional advice is, that it is better that the aged should be made comfortable in their own homes however anti-hygienic they may be, than that they should change their residences as the seasons change. This, I am confident, is a very great mistake. I have found that old people not only bear changes well, but if such changes are judiciously made, they are not only invigorated by them, but that change of air and scene stimulates them to greater mental vigor and physical power. It is an established fact that change gives fresh impulse to mature life, and my experience teaches me that the same holds good with the aged.

Second. The localities best suited to the development of healthy old age are those which invite to an out-of-door life with surroundings and associations such as shall stimulate to mental and physical activity free from excitement, for it is to be remembered that the aged live more within themselves and are consequently annoyed and fatigued by excitement.

An old man that has the spirit of a Walton within him, who can spend most of his hours from sunrise to sunset with his rod in a pure air, grows strong and young, he hardly knows how or why. Paint to yourself the picture of such a one by some quiet stream angling for the

wary trout, there is nothing to disturb his mental poise, and the pleasurable excitement of the educated and enthusiastic fisherman is a stimulus to his mental and physical vigor, such as cannot be found elsewhere in the wide world. The botanist may find his new life in the flowers and plants that are not familiar to him in his old haunts. Or an Agassiz may find his inspiration as he revels in a new world of marine life.

Third. The localities suited to healthful development of age must furnish an abundance and variety of well-cooked food, the comforts and, if possible, the luxuries of life must be within easy reach, for if there is any one period of life more than another in which comforts and luxuries are essential to its healthfulness, it is that of old age. For what ought men in their activities to strive for more than comfortable sunset? As I have already stated, the food of the aged must be simple and nutritious, and, above all, well cooked. If you send a toothless old man to a second-rate hotel, even in the garden of Eden, his muscles will grow more flabby, his step more tottering; his mind will fail to be stimulated by the glories of nature which surround him, and he will languish and die for the good table and comfortable bed which he has left in his own home.

These, gentlemen, are a few of the conditions of environments which are necessary to the development of a healthy and vigorous old age, and it seems to me in this period of progress, it is not unworthy of scientific workers in our profession to study and make themselves familiar with those conditions and requests which shall tend to give us more vigorous and useful aged ones, and the few that astonish us by their mental power and ability to do good work long after the period of maturity has been passed, shall become the many.

As maturity passes almost insensibly into the period of decline, so the diseases of the early period of old age resemble very closely those of maturity. Dyspepsia, arthritic affections, and renal diseases, are then frequent. Later, obstruction to the venous circulation and the rigidity of the arteries, lead to local hyperæmia and extravasation, which cause all inflammatory diseases to assume a subacute or chronic type, so that in estimating the therapeutic value of climate and environment in senile diseases, we are led to consider them from two standpoints:

First. Those diseases which may occur during other periods of life, but when they occur during the period of senility present special characteristics.

Second. Those diseases which arise partially or entirely from changes in the economy which has taken place as the result of age.

In the last class may be included those structural changes which sooner or later reach such a point of development that the physiological and pathological states become blinded by an imperceptible transition, and can no longer be sharply distinguished. It is simply a process of atrophy, the cellular elements of the parenchyma, the muscular and, perhaps, the nervous elements, progressively diminish in volume, but without presenting any essential modifications in structure. The connective tissue, however, does not participate in the same degree in this mode of slow destruction. It often predominates over the other tissue elements. During the period in which these changes are taking place, the body is especially susceptible to influences which lead to the development of diseases which are characteristic of this period of life, and which largely depend on the defective nutrition of the tissue elements.

That all chronic pulmonary diseases in the aged are greatly influenced by atmospheric conditions is taught by every day's experience. There are, however, certain anatomical and physiological differences in the respiratory organs of the aged which must be considered in determining the locality to which we will send the old man with bronchitis, emphysema, or phthisis. The rarefied condition of their lungs, the dilatation and diminished elasticity of their air-cells, and the obstruction of a large number of their pulmonary capillary vessels, accompanied, as it is, with the diffusion of the carbonaceous matter throughout their substance, modify very greatly the pathological changes which occur in them; besides, as years multiply, the volume of the vital capacity diminishes at the rate of one and a half cubic inches with each year, and the frequency, as well as depth and force, of the respiratory acts much less than in middle life, causing a greater preponderance of venous blood in the lungs than at any other period. It is evident that, on account of these changes, the climatic conditions and environment which would act therapeutically in pulmonary disease in the young, would not be suited to the aged—certainly, from a physiological standpoint, the rarefied atmosphere of high altitudes is not suited to the aged suffering with pulmonary diseases; too dense an atmosphere is equally injurious, nor do their cardiac and vascular conditions allow such changes to be safely made.

It is never safe for an aged person with chronic bronchial catarrh to pass quickly from a very dry to a very moist atmosphere. My clinical experience has given me many examples of the injurious effects of such changes in this class of cases, as well as the ill effects of high altitudes on the vascular system of the aged. The localities which I have found best suited to old persons suffering with chronic bronchial catarrh and pulmonary emphysema, from December to April, is Nassau, the Bermudas, and Monterey. In July and August they do well at Shelter Island, and at Newport or Cape May; all of this class of cases that I have sent to the mountains have done badly, except a few that were complicated by hereditary asthma of long standing.

The phthisis of *old age* is generally of the fibroid variety, slow in its development, and never entirely recovered from; but its progress may be delayed and its distressing symptoms very much alleviated by an out-of-door life in a warm, moderately dry atmosphere. The locality of all others in which this class has been the most benefited during the winter months is on the Gulf coast of Florida. During the early spring, Thomasville, Ga., and Aiken, S. C., are places at which they can spend two or three months with benefit on their way north for the summer. During the summer months I have found that the seacoast off Cape Cod and Narragansett furnishes atmospheric and hygienic conditions which are especially adapted to a large class of old persons suffering with phthisis. I have frequently found that, after a summer spent in these regions, the activity of the phthisical processes was arrested, and that often those in whom the disease was quite far advanced make a remarkable gain in flesh and strength.

I have one patient, a gentleman now seventy-six, who

has been under my observation for nine years with advanced phthisis, who had three homes—one in Orange County, Florida, one in Columbus, South Carolina, and one in Newport, Rhode Island; he divides the year between them spending his winters in Florida, his springs in Columbus, and his summers in Newport, and maintains a fair degree of strength and vigor; but for these changes, and the great care which he exercises in diet and an out-of-door life he long since must have succumbed to his disease.

In connection with the climatic treatment of the pulmonary diseases of the aged, I wish to say a word in regard to change of climate as a prophylaxis against their development. Physicians, as well as patients, are too apt to think only of the diseases that already exist, and lose sight of those which may threaten. While we are usually consulted for the relief of present difficulties, and not as to how possible ills may be averted, still in our capacity, as guardians of health, it seems to me that the time has come when we should impress upon the public mind the importance of prophylaxis, and teach those under our immediate supervision that after sixty a failure to recognize the changed condition of their vital powers, and a continuance in the business habits of earlier life, after this period, are often no better than suicide.

Not a winter passes that I do not see cases exemplifying this point. When one who in early life has suffered from repeated attacks of severe bronchitis, or, it may be, has passed safely through a pneumonia or pleurisy or barely escaped a phthisis, finds himself in sight of three score and ten, he should be taught that, from a business as well as a physiological standpoint, he should so arrange his affairs as to avoid those months in our northern climate in which pneumonia and other acute pulmonary affections have their harvest among the aged.

During the past winter one of the most important and influential men in the business circles of New York, who barely escaped phthisis as a young man, was warned by his physician that at sixty-five he could not safely risk the vigor of a northern winter, and was urged to spend it on an island in the South where he owned a beautiful residence, but he plead the importance of a new business venture, which one of forty ought not to have undertaken single handed, and laughed at the warning. In February after a hard day's work, he became chilled on his way home, and in three days added another to the list of business suicides.

In a country like ours, which offers so many delightful winter homes which are closely connected with our great business centres, there is no excuse for men of means neglecting these provisions of common prudence.

Physicians who have passed sixty years, especially if their previous history indicates a strong liability to pulmonary disease, ought also to remember that a doctor above ground can accomplish more in nine months of the year than he can below in twelve.

Very few old persons escape arthritic disease in one or other of its many forms. Charcot says that "rheumatism and gout are 'par excellence' the diseases of old age, and that the pain and inconveniences which they occasion interfere very greatly with their activities, and thus tend to shorten the duration of life." There is, perhaps, no class of diseases which are more markedly influenced by atmospheric conditions. It is by his gouty twinges that the old man so accurately predicts the coming storm, and the question is constantly coming to us from the aged sufferers, Where shall I go to escape my rheumatism? Certainly they must avoid cold, damp sea-places, as well as the mountains. I would advise that they should spend the winter months below the frost line in Florida, or in Southern California. I have yet to send an old person with gout or rheumatism to either of these localities to spend the winter who has not been benefited by the change. So soon as the comforts and luxuries of life can be obtained by invalids in these regions, I am quite sure they will become the winter homes of the old who are the subjects of arthritic diseases; chronic vesical catarrhs, independent or connected with prostatic enlargement, so common in the aged, is as much influenced by atmospheric conditions as are bronchial catarrhs, and occurring as they do in gouty or rheumatic subjects, usually obtain benefit in the same localities that are suited to arthritic subjects.

This class of cases, however, are exceedingly obstinate; if there is anything that shows more clearly than another their intractable nature, it is the long list of remedies which have been employed in their treatment.

I have long since abandoned the local measures usually resorted to in their management and have relied almost exclusively upon diet and climate. My experience has shown that they are always aggravated in damp, cold localities, especially those that are subject to sudden and extreme atmospheric changes, while they are greatly improved and sometimes entirely relieved by a residence in a warm sea climate.

I have found the Bermudas and Nassau best suited to this class of cases. I recall a very obstinate case of a gentleman seventy-two years of age, who had suffered constantly for four years with an aggravated form of chronic cystitis, and had been subjected to various plans of treatment, both local and constitutional, without relief, who entirely recovered after he had taken up his residence in Monterey.

The localities which I have named as best suited to the aged in health and disease, are those with which I am personally familiar; I have not referred to those outside the boundaries of our own country, for my experience has convinced me that it is seldom wise for an old person to take the risks of a long sea-voyage. There are undoubtedly many other localities equally as desirable as those which I have named, but my personal experience is not sufficient for me to recommend them.

If the few suggestions which I have made shall have so interested the members of this Association, that a more careful and extended study of the hygiene, and a more intelligent care of the aged in health and disease, shall gain a more prominent place in the work of our profession, I shall be satisfied and feel that I have added my mite to the relief and prolongation of the most interesting period of human life.

ORIGINAL ARTICLES.

"AINHUM,"

With Case and Remarks.

By R. H. DAY, M.D.,

OF BATON ROUGE, LA., EX-PRESIDENT OF THE LOUISIANA STATE MEDICAL SOCIETY.

IT is a somewhat remarkable coincidence, that Dr. Shepherd and I should have operated for the

relief of this rare disease in the same year and the same month; he, in Montreal, on the 14th of May, 1886, and I, in Baton Rouge, Louisiana, on the 8th of May, 1886.

I infer from Dr. Shepherd's report of his case (*American Journal of the Medical Sciences*, January, 1887, p. 137), that it was the first he had seen. Mine was the first I had seen; and, in truth, I was perfectly at sea as to its name or nature, for in all my experience or reading I could not recall any affection bearing the slightest resemblance to it, or affording any light upon the subject.

Dr. Shepherd has given us a very interesting and full account of all that is known of this singular disease. The name "ainhum" is a most unfortunate and inappropriate one, from the fact that it expresses no one feature of the affection According to Dr. Shepherd, it is simply the "negro name" for this disease; but whether of any linguistic origin or a negro vulgarism we are not informed.

My case first came under my notice in the early part of 1885. The subject, a colored woman (Sylva J.), was born in August, 1824, in the Parish of East Baton Rouge, Louisiana. Has always been healthy and well nourished; and of healthy parentage, so far as can be learned from her statements. I was first called to see her on account of the excruciating pain she was suffering, which I found to be located in the little toe of the right foot. The appearance of the toe was peculiar and striking. The extremity of the toe was much larger than normal, and of a blunt, ovoid, or club shape, with a deep fissure in the second phalangeal space, immediately behind the first articulation, with considerable enlargement of the toe behind the stricture, involving the metatarso-phalangeal joint and the dorsum of the foot. On the upper and outer aspect, near the first joint, there was a dry eschar, like a condensed corn. There was no open ulcer or abrasion of the skin on any portion of the toe; and the deep fissure looked exactly as though it had been purposely brought about by the continuous constriction of a tightly drawn elastic cord; so much so, that I questioned and cross-questioned the patient closely in that direction, before my mind could be disabused of the strong suspicion that such had been the cause of the trouble. The strictured pedicle was small and felt destitute of bone, as if composed of tendons and condensed tissue only, as the toe could be rotated and deflected at any angle without trouble, but with excruciating pain.

The patient states that in 1881, early one morning, after a short walk, she experienced an itching, burning sensation in her right foot, and that upon inspection she noticed upon the little toe a small point or vesicle, as of the bite or sting of some insect. Her foot and leg became inflamed and swollen, which she relieved by bathing and poulticing; but the toe from that time on, she says, was a source of trouble and very painful, at times much more intense and aggravated.

She tells me (for I have recently questioned her) that previous to my first visit to her, a negro doctor had been called to see her, and that he clipped off the end of her toe, which, no doubt, accounts for its club-like extremity.

The history of this case is given as derived from the patient, and although a woman of the average intelligence of her race, such is the superstitious nature of the negro, and his proneness to magnify his ailments and sufferings, that it is almost a matter of impossibility to obtain a clear and intelligent history. Hence in this case, the origin of the disease, its progress and history, are all more or less obscure and unsatisfactory, and but little light is shed upon its origin.

That the disease is obscure in origin and slow in its progress, seem to be pretty well established by the few cases that have been reported; and also it is demonstrated to be peculiar to the African or dark raced people. That it is also a disease of rare occurrence seems to be fairly well made out; and yet it is a question if this characteristic feature may not be owing, in a great measure, to its limitation to the negro race, and to its slow and non-fatal tendency. Although I had been in regular practice fifty-two years before I saw my first case, I have since seen one other.

Dr. J. L. Deslattes, of St. James Parish, La., has seen four cases. He writes me as follows:

"While I was practising in St. Johns I saw two cases occurring in old negroes.

"About ten years ago there was an old negro in the Longview settlement, who gave a pretty clear history of his case. The toe, when seen by me, seemed to have suffered from a slow molecular necrosis. This necrosis had begun on the inside of the toe and had gradually reached the bone. The bone itself had become denuded of periosteum, was somewhat loose and perfectly detached. The probe introduced into this cavity went way beyond the bone to the skin on the opposite side. A very slight discharge came from this cavity. There seemed to be very little or no pain. The disease was slow in its progress. This old man begged me to cut off his toe. Some two or three months afterward, on inquiring about him, I was told that he had amputated his toe himself with a hatchet a few days after he had seen me.

"There is now in that neighborhood, a man who, I am told, has amputated his toe himself for the relief of the same trouble."

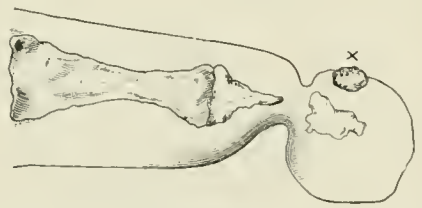
There appears to be no heredity in connection with this affection; and, as far as we can judge, it is strictly local in character, the general system, in the subjects affected, remaining well nourished, robust and unimpaired in health, during the protracted and painful progress of the local disease. Its real pathological and essential lesion seems to be necrosis of the phalanges of the toe, with limited circumscribed stricture of the superimposed tissues. What

causes, specific or general, can so alter or modify the nutrition of the parts, as to produce this decay and death of the phalanges and circular constriction of the soft tissues, must be a matter of mere speculation, and so remain until more extended observation and research shall develop facts sufficient to disperse the darkness that now enshrouds the subject.

The theory of Dr. Shepherd, that the disease is of "nervous origin," and is due to some "trophic disturbance of the nerve centres," is very probable.

As already stated, I operated on my case on the 8th of May, 1886, amputating the toe at its metatarso-phalangeal articulation. The patient made a good recovery, and is still living and in good health, with no tendency, that can be discerned, to any further toe trouble.

In order to give a fair representation of the disease, and to make the description of it more intelligible, I have endeavored to present in the accompanying drawing the exact appearance of the toe, and also



Appearance of the toe. The shaded border on the inferior aspect shows an injected and purplish condition of the tissues in that locality, indicating a previous congested state of the tissues and capillaries. × indicates the position of the little eschar.

a *fac-simile* of the abnormal changes wrought in the phalangeal bones. It will be observed that there is a notable difference in the appearance of the toe and its phalanges in my case from that of Dr. Shepherd. This, however, is merely one variety in the form of the disease, or stage of development, and evidently evinces the essential morbid lesion in the two cases to be identically the same.

THE CONNECTION BETWEEN MASTURBATION AND STRICTURE OF THE URETHRA.[1]

By SAMUEL W. GROSS, M.D., LL.D.,
PROFESSOR OF THE PRINCIPLES OF SURGERY AND CLINICAL SURGERY IN THE JEFFERSON MEDICAL COLLEGE.

Although masturbation had previously been recognized by several writers as a cause of organic stricture of the urethra, I was, if I do not mistake, the first to call prominent attention to that fact in the *Medical and Surgical Reporter*, May 5, 1877, and subsequently in the three editions of my brochure on *The Diseases of the Male Sexual Organs*. It is my present purpose, through the medium of this body, in a very few words, to direct the attention of the general practitioner to the very common occurrence of stricture in masturbators, in order that he may search for a factor in maintaining the disorders, both local and general, to which these persons are subject.

In the second edition of my brochure the statement will be found that, of 173 masturbators, one or more strictures were detected in 151, or 87 per cent. Since the appearance of that edition, I have had 157 additional cases, and find that, out of a total of 331, strictures were present in 291, or 88 per cent. The last 157 cases were carefully examined as to the calibre, number, and seat of the coarctations, and my remarks will be confined to these cases alone. In order that there may be no doubt as to the accuracy of the observations, it should be stated, first, that the examinations were conducted with the soft acorn-headed bougie upon patients who had never suffered from gonorrhœa and many of whom had never had sexual intercourse; and, secondly, that when, in addition to a stricture at or near the meatus, other coarctations were discovered, the final diagnosis of the more deeply seated ones was made only after the division of the stricture at the orifice.

Of the 157 cases, one or more strictures were present in 140, or 89.18 per cent., and absent in 17, or 10.82 per cent. In 19.3 per cent. the calibre was below 21 of the French scale—the smallest having measured fourteen millimetres in circumference; 22.6 per cent. ranged between 21 and 24; 51.5 per cent. between 25 and 27; and 6.5 per cent. between 28 and 31 millimetres.

Of the 140 examples of stricture, there was one in 82, or 58.57 per cent.; two were found in 41, or 29.29 per cent., and from three to six were present in 17, or 12.14 per cent. Of the 82 solitary strictures, 65 were seated at or near the meatus; 4 in the spongy portion of the urethra; and 13 in the bulbous division. Of the 41 examples of two coarctations, 31 were found at the meatus and bulb; 4 at the meatus and spongy urethra; and 6 in the spongy and bulbous portions. Of the 7 cases of three strictures, in 5 they were located at the meatus, in the spongy, and in the bulbous divisions, and in 2 there was a single coarctation at the meatus, and two in the pendulous urethra. Of the 7 instances of four strictures, there were one at the orifice, two in the pendulous portion, and one in the bulb in 2; one at the meatus and three in the pendulous portion in 2; and three in the pendulous urethra and one in the bulb in 3. Of the two examples of five coarctations, there were one at the meatus, two in the pendulous urethra, and two in the bulb in 1; and one at the orifice, three in the pendulous portion, and one in the bulb in 1. In the single case of six strictures, five were found in the spongy urethra and one in the bulb.

An interesting fact, deducible from a study of the preceding measurements, is that in not less than 113,

[1] Read at the meeting of the American Association of Genito-Urinary Surgeons, Washington, September 18, 1888.

or 80.71 per cent., of the 140 cases, was a stricture found within one-third of an inch of the orifice. It, moreover, appears that when there was only one coarctation it was seated near the orifice in 79.26 per cent. of all cases; while, when there was more than a single stricture, one was present near the meatus in 82.75 per cent. of all examples.

In conclusion, it may be affirmed that, as a result of my personal observations, urethral stricture may be looked for in nearly nine-tenths of all masturbators who have never had gonorrhœa, and that, as a rule, the stricture will be found to be of large calibre, single, and seated near the meatus.

MEDICAL PROGRESS.

Ether in Heart Failure.—Two years ago Bamberger (*Wiener klinische Wochenschrift*) had under his care a man, aged sixty, who was suffering from severe insufficiency of the heart depending on fatty degeneration, and most probably also from sclerosis of the coronary arteries, but without cardiac failure. The other symptoms present were considerable dropsy, albuminuria, swelling of the liver, severe dyspnœa and continual sleeplessness. The patient had enjoyed perfectly good health until recently, but owing to overwork and irregularity of life the action of his heart became impaired. As the ordinary remedies were of no use or were only temporarily beneficial, the patient was directed to undergo the Oertel "cure" in the mountains. The symptoms, however, and particularly the dyspnœa, increased to such a degree before the treatment commenced that the attending physician, becoming anxious about the case, had recourse to injections of ether with a Pravaz's syringe. This had a really surprising effect, as immediately after the injections the secretion of urine, which could not be augmented by any means before, increased to several thousands of cubic centimetres a day, and continued to be so for some time longer without any other remedy being used; the dropsy and the dyspnœa also simultaneously decreased. In this ameliorated condition the patient was able to undergo the Oertel treatment, at Reichenau, where his health made further progress. In the spring of the following year, the patient was seized with an apopletic attack—probably of embolic origin—with hemiplegia of the left side; contracture of the left arm remained behind. Later on symptoms of dropsy again showed themselves, for this the treatment with calomel proved very useful, as the excretion of urine rose to 6000 cubic centimetres a day; the vital powers of the patient, however, decreased more and more, and death supervened. With regard to the surprising effect of the ether, Professor v. Bamberger says that two possibilities had to be taken into account, namely, either the effect on the heart itself, which stimulated the weakened organ to a last successful effort, and thus overcame the congestion in the renal bloodvessels, or there was a direct influence on the excretory apparatus of the kidneys. From the fact that calomel had a similar effect, which could only be explained on the latter of these two hypotheses, Professor v. Bamberger considered that the direct influence on the secreting apparatus was, in all probability, the correct explanation.—*British Medical Journal*, September 1, 1888.

Convulsions in Children Caused by Opium.—Roth (*Bulletin Médicale*) has confirmed the fact that opium, even in small doses, causes, in infants, convulsions, which may be fatal. The dose may even induce convulsions in the fœtus, of which Roth cites a case. A pregnant woman who had taken large doses of opium observed, shortly after ingestion, violent, almost unendurable fœtal movements. The author therefore considers irrational the use of opium to prevent abortion.—*Deutsche medizin. Wochenschr.*, August 2.

Experimental Sinus Thrombosis.—Ferrari thus summarizes the results of fourteen experiments upon dogs with artificial plugging of the venous sinuses of the dura mater:

1. Thrombosis of a sinus of the dura mater occasions no obstruction of the circulation in the related cerebral area and gives rise to no more profound anatomical changes.

2. A large portion of the sinus passages may become impervious, *e.g.*, all the sinuses of the vertex, without disturbance of the cerebral function. Simple, though extensive, sinus thrombosis in dogs occasions no symptoms whatsoever.

3. Obstruction of all the sources of exit of blood from the cranium is rapidly fatal, death being usually preceded by an epileptic attack.

That the results attained in dogs are applicable to man cannot be determined. The analogy of the cranial venous symptoms makes such a view plausible. Clinical observation does not contradict it. Repeatedly at autopsies have thromboses been accidentally found which gave rise to no symptoms. Such conditions may often arise and be overlooked, because of the recovery of the patient. The severe symptoms of thrombosis are the result rather of the complications than of the constriction of the sinus.—*Medizin. Jahrbücher*, Heft 3, 1888.

Kidney-bean in Renal Troubles.—It is stated that a wineglassful of an infusion made from the dried leaves of the kidney-bean, has remarkable effects in quieting the pains of nephritic colic. M. Bouloumis has used it with favorable results in several cases; in one of which, renal calculi accompanied the spasm; in another case, of urethral pains, the patient was afflicted with chronic cystitis and enlarged prostate.—*Revue de Thérapeutique*, September, 1888.

Oxyuris Vermicularis.—The following mixture is said to be highly efficient:

R.—Tinct. rhei	. . . . .	gtt. iij.
Tinct. zingiberis	. . .	gtt. ij.
Magnesii carbonatis	. . .	ʒ iv.
Aquæ	. . . . .	ʒ iij.—M.

This amount to be given three or four times daily, according to the effect produced.

The rhubarb may act as a vermicide or as an agent which simply detaches the worms. In either event it causes the expulsion of great numbers of them and induces regular bowel movement.

Sterilized Milk in the Digestive Disorders of Children.—Penzoldt, before the local medical society of Erlangen, stated that the excellent results from the nourishment of

healthy children, during the first months of life, exclusively with milk sterilized according to the method of Soxhlet, induced him to introduce the method into the institution for nursing children. As sterilized milk was not the exclusive source of nourishment, but was given only by day, some other and less appropriate form of nourishment being given during the evening and morning, the result from the outset naturally seemed uncertain. Nevertheless, it really proved surprisingly successful. The number of cases of diarrhœa, from careful records of the matron, was extraordinarily diminished after the innovation. This result encouraged him to use sterilized milk in the dietetic treatment of existing gastric disorders. It is well known that when such conditions arise it is useful to withdraw the milk, particularly ordinary cow's milk for a time, and replace it by demulcent fluids. The latter, however, are not sufficiently nutritious for long periods of time. The possibility of continuing the use of milk during the course of dyspepsias would be most desirable from a nutritive point of view. For more than a year, all cases of chronic dyspepsia in infants at the polyclinic were treated with milk sterilized by the Soxhlet method, partly without and partly with simultaneous medicinal therapeutics. The milk was prepared by the matron. The doctor ordered the quantity to be given by the parents. That the necessary care in administration was not always observed, and that other nourishment was given in addition, were unfortunately unavoidable evils, resulting from the ignorance of the parents. The practical outcome, however, may be better understood from the studies of the assistants at the polyclinic, Drs. Haas and Grätz, of a large variety of cases, with modifications of the treatment. They have come to these conclusions: In the chronic dyspepsias of infants the exclusive use of sterilized milk affords none or but slow improvement; if, however, the treatment is begun with an efficient calomel purge, milk entirely withdrawn for a few days, and then milk sterilized by Soxhlet's method given, the result is frequently favorable and relapses occur less readily. The explanation is evident. If, in the course of a dyspepsia, milk, sterilized, but still capable of fermentation, is introduced into the intestinal canal, the contents of which are in a state of abnormal fermentation, the fermentative processes will continue. If the fermenting mass is diminished and disinfected by means of calomel, renewed abnormal fermentation may then be avoided by the ingestion of sterilized milk. Thus the Soxhlet process becomes an important prophylactic measure in the case of dyspeptic children as well as in the nourishment of healthy children.—*Münchener medicin. Wochenschr.*, August 21, 1888.

Erythrophlœin in Cardiac Trouble.—The action of erythrophlœin has been carefully studied in the clinic of Drasche, in Vienna (*Wiener klinische Wochenschrift*). It was used in cases of compensated and non-compensated failures of the heart, as well as in cases of fatty heart with slight disturbances of circulation. The drug was used in a solution of 0.002 gramme of erythrophlœin in 10 grammes of cherry laurel water, ten drops of this solution being given every hour. In general, the drug was well tolerated, and only in a case of insufficiency of the aorta depending on acute articular rheumatism did the sensation of disgust and great irritation supervene. Retardation of the pulse after the administration of erythrophlœin came on in several cases, and this was particularly true of the case of insufficiency of the aorta after 150 drops of the solution had been given for eight days. The number of the pulse-beats was reduced from 100 to 84 a minute, and in another case of insufficiency and stenosis of the mitral valve, the pulsations decreased from 100 to 68 a minute after the administration of 50 drops of the solution, and during an interval of time of from midday till 5 P. M. This, however, was not constant, as in the last-mentioned case the number of the pulsations reached 108 a minute three hours later, although the administration of the solution was continued.

In another case of insufficiency of the mitral valve with severe palpitations, the drug was administered for twelve days, and it was not until some days later that the frequency of the pulsations sank from 120 to 96 in a minute, and at the conclusion of the experiment it decreased to about 84 beats. As to the effect of the erythrophlœin on the renal function no particular influence could be observed in some cases, whereas in another series of cases the effect was quite striking. In a patient affected with incompetence of the mitral valve the daily quantity of urine, during an interval of twelve days, increased from 800 to about 1500 cubic centimetres. In another case of slight fatty heart, in which, before the use of erythrophlœin, the number of the pulsations was from 68 to 60 a minute, and the quantity of urine reached 700 cubic centimetres, the latter increased to 2150 cubic centimetres, while the pulse remained unchanged. The disturbance of respiration had also diminished. Erythrophlœin had also a marked effect on the pupil. In a patient with incompetence of the mitral valve, persistent dilatation of the right pupil ensued on the sixth day after administration. In another case with insufficiency of the aortic valve, distinct dilatation of both pupils came on on the fifth day; this disappeared some days later when the administration of the drug was discontinued. Kaposi had also observed dilatation of both pupils in a case of poisoning from the subcutaneous injection of two centigrammes of erythrophlœin.

For the sake of comparison, experiments were made with strophanthus. In cases in which erythrophlœin exerted no particular influence on the frequency of the pulsations, the arhythmia and the congestive symptoms, from 60 to 70 drops of the tincture of strophanthus with equal parts of laurel water were administered in the day. The difference was very striking, and the slight effect of the erythrophlœin could not be compared with that of strophanthus. In one case, for instance, the frequency of the pulsations after the use of strophanthus soon fell from 112 to 72 a minute, and remained nearly at this rate. The arhythmia had almost entirely disappeared, and the excretion of urine was augmented to a much higher degree than after the use of erythrophlœin. Symptoms of poisoning with erythrophlœin were observed on only two occasions. The results of the experiments with erythrophlœin may be summarized as follows: The drug had a marked retarding influence on the pulse, but the effect was not lasting. This was also true of its diuretic influence. The drug was well borne, and might be tried in cases in which digitalis, strophanthus, and similar medicaments, were either not well tolerated or were contraindicated. Erythrophlœin did not appear to have any cumulative effect.—*British Med. Journ.*, Sept. 1, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, SEPTEMBER 29, 1888.

WHAT SHOULD BE DONE TO ARREST THE YELLOW FEVER EPIDEMIC.

IN our issue of last week we insisted that when an epidemic of yellow fever occurs in the United States, some one is responsible, inasmuch as the disease is nowhere endemic in this country, and, when introduced, its extension may be prevented by the efficient application of known sanitary measures.

We cannot at present discuss the question as to where this responsibility rests. Evidently not upon any single individual, but upon our imperfect system or want of system of sanitary defence, for which the responsibility rests with the Congress of the United States, and not with the leading sanitarians of the country, who have repeatedly asked for the enactment of legislation establishing a Central Health Bureau, with full powers and ample means to cope with this and other epidemic diseases, which do not respect State boundary lines; and upon the absence of well-organized and vigilant State and local health boards in the State first invaded.

Leaving, then, this question of responsibility, we ask, What can and should be done, in this emergency, to arrest the progress of the epidemic? The principles which should govern the action of those upon whom this task devolves do not differ from those which we indicated last week as essential for arresting the disease at the outset in one or more isolated foci; but the difficulty of the undertaking is enormously increased by the wide extension of the disease and the panic of the population in invaded or threatened towns. Theoretically, the main reliance of these towns should be upon general sanitary police, by which the nidus in which the exotic germ is known to thrive is removed. But it is Utopian to expect that this condition of defence can be established upon short notice in towns without an efficient sanitary service, and in which, too often, the rudiments of sanitary science are unknown, or, if known, are utterly neglected. Clean up by all means, but do not imagine that street-sweeping and removal of garbage from back doors and vacant lots will prove a sufficient defence against this enemy, which domiciles itself in insanitary dwellings and appears to thrive luxuriantly in a filth-polluted soil. Our main reliance, then, must be upon isolation of the sick, disinfection, and depopulation of infected areas.

As a rule, it will be best in the interest of the community and of the sick, to care for the sick in the infected locality. Those, however, who fall sick at a distance from the point where they contracted the disease should at once be removed to a place where isolation and disinfection of excreta can be enforced, for they are likely to establish new centres of infection—not by communicating the disease directly to those in contact with them, but by sowing germs which, under favorable circumstances, multiply external to the human body, as is the case in cholera and typhoid fever.

But when an infected centre is developed in any locality, as shown by the occurrence of cases of local origin, the rule should be to remove all unprotected persons from the infected area unless their presence is absolutely required for the care of the sick. Remaining within this area does not seem to add to the danger of an attack, while removal after the first forty-eight hours of sickness is often fatal, and, on the score of humanity, should only be tolerated under very exceptional circumstances. The removal of the sick from an infected area with the idea that in this way the disease may be gotten rid of is a fatal error which has repeatedly been made, and invariably with the same result. The locality is none the less infected because the sick have been removed, and the danger to unprotected persons remaining in it is not diminished by such removal.

All experience shows that the opposite procedure is the only sure method of checking the progress of an epidemic. Remove the well from infected areas, disinfect their clothing and personal effects, and keep them under observation for a sufficient time to

insure the safety of other communities; while the sick are cared for as far as practicable by nurses and physicians who are protected by a previous attack of the disease or by acclimatization in a place where it is endemic.

Depopulation of infected areas, with the exception of those persons required to take care of the sick, should be compulsory, and, therefore, at the expense of the general government—for if in the interest of the public health we force people to leave their homes, it is evident that we are under an obligation to take care of them during this enforced absence.

What we have said relates to the depopulation of infected localities only. The general depopulation of a city in which one or more infected localities have been developed is another matter. We would not attempt to depopulate Baltimore or Philadelphia because one or more foci of infection had been established, but we would attempt to isolate each focus. This is the place for a sanitary cordon, not to keep well people shut up in a death trap to protect others, but to keep foolhardy persons from entering the dangerous area. To attempt to shut in the whole population of the town is preposterous. On the other hand, they should be encouraged and assisted in removing to a place of safety, while this can be done without endangering other communities—*i. e.*, while the infected area is still restricted to one or more localities of limited extent; and this without any unnecessary restrictions or detention. The barbarous and unreasoning shotgun quarantine of their neighbors should not stand in the way of their exodus; they have as much right to make a sortie with shotguns in their hands to save their lives as the others have to protect themselves from infection.

Evidently here the strong arm of a superior authority is required, not only to prevent the extension of an epidemic, and to secure the rights of individuals under all circumstances, but to save us from disgrace in the eyes of enlightened people in other parts of the world.

LABORATORIES FOR INSTRUCTION IN PRACTICAL HYGIENE.

THERE are not less than six European institutes for the practical teaching of sanitation, that of Pettenkoffer, of Munich, being the earliest; Berlin, Leipzig, Göttingen, Amsterdam, and Buda-Pesth following. London has its College of State Medicine, with a museum, under the direction of Sir Joseph Fayrer, begun this year. Wurzberg, as we recently announced, has the promise of an institute of hygiene under Prof. Lehmann. Prof. Proust, of the Paris Faculty of Medicine, is at present engaged upon a laboratory and museum specifically designed and devoted to practical sanitary instruction.

The first American university to take this department of tuition seriously in hand will, without doubt, be Columbia College, New York, where steps have been taken to locate in its School of Mines this added study. It is true that a sanitary museum has been begun at Washington, in the Department of the Navy, but it has not yet been made available for teaching purposes.

AN Intercolonial Medical Congress will assemble in Melbourne, in January next, under the presidency of Mr. T. N. Fitzgerald. About 500 medical men will meet in conference, including the presidents of the various medical associations throughout Australasia, the medical advisers of the different Governments, the inspectors of asylums in all the colonies, the professors and lecturers in the several medical schools, and a large number of the leading members of the profession. After the inaugural meeting, to be held on January 7th, the Congress will meet in nine or more different sections. Prof. H. B. Allen, of the University of Melbourne, is Secretary of the General Committee.

THE meeting of the Southern Surgical and Gynecological Association was not held in Birmingham on the 11th, 12th, and 13th of September, as announced, but has been postponed till the first Tuesday in December, owing to the quarantine against yellow fever.

ACTS of heroism in medical life are so frequent and appear to be so natural a part of it that they are not chronicled as often as they should be. One such deed, however, recently found its way into the *British Medical Journal*, where it is mentioned as an illustration of the self-sacrifice of medical men in behalf of suffering humanity. It is the case of a surgeon in the British army named Landon. Mortally wounded himself, and with the grasp of death rapidly closing down on him, he heard a wounded soldier crying out from the sharp pain of his hurt. Forgetful of self, he crept with difficulty to where the man lay and gave him a hypodermatic injection of morphia to lessen his suffering and, having given it, lay down and died by the side of the soldier.

REVIEWS.

The Physician's Bedside Record. By Gideon C. Segur, M.D. Hartford, Conn.: The Plimpton Manufacturing Co., 1888.

This record is designed for use in a single case. It contains a page for preliminary history; twenty-eight pages for the record of as many days' observations, ruled with spaces for pulse, temperature, respiration, medicine, notes of the nurse, and the physician's orders and directions; pages for the personal notes of the physician, the whole concluding with a chart for pulse, temperature, and respiration. It is of convenient size for the pocket, bound neatly and cheaply, with spaces on the cover for the data of value for future reference.

The peculiarity of the record is that it includes the observations of the physician and nurse upon a given case, in convenient shape for filing and reference. It seems, to us, of practical value, and likely to prove a welcome addition to the physician as a handy method for making and preserving notes of his private cases.

The Disorders of Menstruation. By Edward W. Jenks, M.D. 12mo. pp. 120. Detroit: Geo. S. Davis, 1888.

This is one of "The Physicians' Leisure Library," a series of short, practical treatises addressed to practitioners. In the present volume Dr. Jenks has given a fair *résumé* of the modern treatment of disordered menstruation. The limits of his book forbade discussions of doubtful points, and the introduction of a thorough survey of the pathology of the affections described. Nor can the book claim original methods of treatment The practice of the average American gynecologist is, however, fairly described; formulæ and illustrations sufficient to bring clearly before the mind the instruments and drugs used are inserted; and the book may be read in the scattered moments of a physician's leisure with profit and interest.

SOCIETY PROCEEDINGS.

AMERICAN SURGICAL ASSOCIATION.

Annual Meeting,

Held in Washington, September 18, 19, and 20, 1888.

(Concluded from page 338.)

Wednesday, September 19th.

Morning Session.

Dr. Hunter McGuire, of Richmond, read a paper on

THE FORMATION OF AN ARTIFICIAL URETHRA FOR PROSTATIC OBSTRUCTION.

It has been his lot to meet with a number of cases of hypertrophy of the prostate gland, which produced more or less obstruction to the passage of urine. These are conveniently divided into three classes.

1. Cases in which the obstruction was due to temporary congestion of an already enlarged gland, which yielded to the ordinary treatment, and did not return.

2. A class of cases in which the obstruction to the passage of urine was permanent but not great. Attention to the general health, the occasional introduction of the catheter, and washing out the bladder, were all that the cases required. These cases are, however, never free from danger from exposure, etc., and gradual enlargement may go on, and bring about the condition met with in the third class.

3. In these cases the obstruction is great and fixed, micturition is frequent and difficult, perhaps impossible without the aid of the catheter. The introduction of the instrument grows more and more difficult, offensive resident urine is always present, and the general health suffers greatly. Cystitis, localized or general, is a painful and pronounced symptom. Violent tenesmus of the bladder, provoked by the obstruction, injures the vesical ends of the ureter, possibly a reflux of stale urine is driven into these canals, and ureteritis follows, then pyelitis, and pyelonephrosis, from which the patient dies.

The paper was devoted to a consideration of surgical interference in the third class of cases. He was led to resort to the measures described from the following circumstances: During the past eight months, four cases of stone in the male required the suprapubic operation. Two because of organic stricture; one because of the large size and hardness of the two the bladder contained; the fourth, because the stone was large and hard, and the patient too anæmic to bear the shock and loss of blood which often accompany section through the rectum.

In one of the cases of stricture, in a man sixty-five years of age, the patient had, two years before coming under observation, a second cause of obstruction. A well-organized stricture was found in the membranous portion of the urethra. Prostate was enlarged, more marked on the left side. Urine showed no evidence of renal disease. An oxalate calculus, three-fourths of an inch in diameter, was also recognized. The high operation for stone was performed. The bladder walls were found thick and unyielding, and contracted. The left side of the gland jutted into the bladder one and one-half inches further than on the right side. The middle lobe was of the size of the thumb, and almost completely closed the urethra. It was decided to retain a fistulous opening, through which urination could take place. This tract was two and half inches long, and extended upward and forward. In its passive state it was closed by the pressure of the parts through which it passed. When the bladder became full and contracted, the urine was forced through the fistulous tract. The patient can now retain water for two or three hours, and has voluntary power both to retain and expel urine.

Case 2 was a man sixty-nine years of age, who had been cut for stone in 1881. In 1883 Dr. McGuire found the prostate enlarged and cystitis present. The patient was given a gum catheter, and shown how to use it. In 1886 electrolysis was employed, without success, in trying to reduce the size of the prostate. July 4, 1888, an operation similar to that performed in the first case was done, with equally good results. At times he is able to retain urine for six hours. He never has any desire to empty the bladder, no matter how full the organ is.

Mode of operation.—The night before the operation the bowels are opened. On the day of operation fifteen to twenty grains of quinine are administered. Antiseptic precautions are adopted throughout. The bladder is washed out with a weak solution of carbolic acid in hot water. An empty gum bag, capable of holding twelve ounces, is passed into the rectum. About twelve ounces of water are then injected into it, which pushes the bladder over

the pubes. The bladder is next filled with a hot solution of carbolic acid. The use of force should be avoided. The penis is tied with a piece of rubber tube to prevent escape of fluid. A vertical incision is next made, beginning three or four inches above the pubes, and extending to the symphysis; this extends to the linea alba. The incision in the latter structure should be from three-fourths to one inch shorter than through the skin. When the transversalis fascia is reached, it should be divided, but not for more than two inches, but should reach to the pubic bone. The fat and cellular tissues between the transversalis fascia and bladder are separated with the handle of the knife. This tissue should be disturbed no more than is necessary. The bladder is now drawn forward with a tenaculum, and opened as low down as possible. The anterior portion of the organ should be carefully explored with the finger.

Sutures should now be applied, extending down to, but not including the recti muscles. The opening left in the skin should be at the upper extremity of the wound, so that the fistula will be oblique, and from two and a half to three and a half inches in length. A catheter is passed through this opening. If the catheter causes annoyance, it may be at once removed; otherwise it is better to allow it to remain a few hours. The dressing consists of a pledget of absorbent cotton, changed as often as necessary. In none of his operations has he met with the peritoneum.

In the after-treatment it is important to keep the urine acid, for acid urine is aseptic. In operations in these cases and in the high operation for stone the amount of blood lost has not exceeded two drachms.

Dr. J. H. Packard, of Philadelphia, read a paper on

SUPRA-PUBIC CYSTOTOMY,

supplementary to one on the same subject read by him at the last meeting, and was intended to correct an accidental omission of the views of Sir Henry Thompson. These were now considered, extensive quotations from the works of this author being given. Two cases were reported, in one of which the operation was performed for the removal of a portion of silver catheter broken off in the bladder; and in the other for the removal of a piece of rubber catheter, said to have been broken off several months previously. In this case a stone weighing 571 grains was removed, in the interior of which was found the foreign body.

Dr. S. W. Gross, of Philadelphia, thought that Dr. McGuire was to be congratulated on having introduced a new operation based upon the mechanism of the bladder and the physiology of micturition; the formation of an artificial urethra in a new position. The various operations which had been performed for the relief of prostatic obstructions were next referred to; the operations of Harrison, Mercier, Bartinini, and McGill were considered.

Dr. William T. Briggs, of Nashville, thought that perhaps in the cases reported by Dr. McGuire a better result might have been obtained by the lateral lithotomy, provided the stone was not too large to be removed by that route, for he had noted that after incision into the prostate the gland diminished in size, and after the wound had healed a catheter could be passed in cases in which its use was before impossible. The perineal operation allows of freer drainage. Under some circumstances the supra-pubic operation is a valuable one. This is especially the case when the stone is so large that its removal through the perineum is liable to produce serious injury of the soft parts. It is, however, often possible, through an incision in the perineum, so to break the stone as to prevent its removal. Every case should be studied by itself; in some, one operation is the best; in others, another is most suitable. All the circumstances of the case must be taken into consideration.

Mr. Reginald Harrison, of Liverpool, said that there are two general methods of relieving obstructions due to enlarged prostate, one by attacking the gland through the bladder; and the other through the perineum. In his operation he makes a median or a lateral incision through the perineum, according to circumstances. The obstructing prostate is next divided with considerable freedom, and a drainage tube of considerable size introduced. From this operation he gets good results. Perineal lithotomy is preferable to the supra-pubic operation, because the lateral incision gives sufficient room for all manipulations. It gives an ample opening for the removal of a stone of considerable dimensions. It also permits of the more or less permanent drainage which these cases require. He had, also, through a perineal opening, used the perineal lithotrite with success. All methods of operation should be remembered, and each employed in those cases in which it seems indicated.

Prof. Annandale, of Edinburgh, had come to the conclusion that if an operation is to be performed for the relief of prostatic obstructions, the perineal operation is the best. This allows of examination of the bladder, permits drainage, and probably causes a diminution of the hypertrophy. It enables one to remove occasionally a portion of the enlarged prostate, when this assumes a pedunculated form. The speaker exhibited a rubber tube which he had found useful in cases of Harrison's operation, when a permanent cure is required.

Dr. A. Vander Veer, of Albany, said that the testimony presented in his paper last year was in favor of the perineal opening so far as drainage was concerned. He had employed Harrison's operation in a number of cases, and the results had impressed him favorably.

Mr. Arthur E. Durham, of London, emphatically endorsed what had been said in regard to operations for stone that no one operation is applicable to all cases. It is a great mistake to be sure of one method, especially in surgery. When we hear a man say that he treats all his cases of fracture in such a way, all his cases of stone in such a way, and all his cases of prostatic disease in such a way, we may be sure that such a man has a very small practice and experience, or else he is a very great fool. In cases in which stone in the bladder is complicated with enlarged prostate, the perineal incision seemed to him to be better than the supra-pubic. He described a method of performing perineal lithotomy which is performed with satisfaction at Guy's Hospital. This consists in the use of a straight staff, the groove extending to within one-third of an inch of its extremity. A knife with a straight back is passed through the perineum until it reaches the groove, then carried along the groove to its extremity, and the point of the knife being held in close contact with the staff, the two are carried forward into the bladder, thus avoiding many of the risks of the operation as ordinarily performed. In concluding, he

referred to the great improvement of the Bigelow operation over the old method of crushing for stone. He had no doubt that this method renders both lateral and suprapubic operations much more rare than they have been in the past.

DR. HINGSTON, of Montreal, believed that the suprapubic operation was one to be performed only in exceptional cases. These he classified as follows: 1. In those cases of stricture in which obstruction cannot be overcome in time to relieve the patient of great suffering. 2. In cases of prostatic obstruction. 3. In cases of tumors of the bladder which would interfere with the lateral operation. 4. In cases in which the stone is too hard or too large to be removed either by lithotrity or by lateral lithotomy. He had removed, without injury to the soft parts, a stone weighing five ounces and five drachms.

SIR WILLIAM MACCORMAC, of London, had performed the operation of supra-cystotomy occasionally. He had never seen any untoward consequences, and the operation seems to be devoid of all risk. He did not consider that drainage was necessary after this operation. The bladder empties itself freely and the drainage tube is a source of irritation.

DR. HUNTER MCGUIRE said that the only object of his paper was to describe the two cases in which he had made an artificial urethra to relieve prostatic obstruction. The various operations referred to were not applicable to all cases, while the formation of an artificial urethra could be done in all cases. He was surprised to hear that supra-pubic cystotomy was considered dangerous. It had the advantage of avoiding some of the unpleasant consequences of the lateral operation, such as dribbling of urine and impotence.

DR. J. H. PACKARD did not want to be considered as an advocate of supra-pubic cystotomy. It had, however, been shown that the danger attributed to this operation did not exist. He considered that the operation was a valuable resource in certain cases. After this operation he had noted diminution in the size of the enlarged prostate. This he attributed to the rest afforded the bladder. It will take place in whatever way the rest may be obtained.

THE PRESIDENT, DR. D. HAYES AGNEW, being called upon, said the ground had been so thoroughly covered that there was little to be added. He agreed with those who held that no single operation was applicable to all cases. The supra-pubic operation may be appropriate in certain cases, while in others the perineal operation is the proper one. In order to avoid the unpleasant consequences which occasionally follow the perineal operation in children where the prostate is small, he avoids the introduction of the finger into the bladder and removes the stone with forceps not much larger than the staff.

While there may be no damage done in the supra-pubic operation in skilled hands, yet with the inexperienced operator there will be risk of opening the peritoneal cavity. He thought that a number of cases had been reported of rupture of the bladder following injection of the organ after dilatation of the rectum with the rubber bag.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. D. W. Cheever, of Boston.

Vice-Presidents.—Dr. T. G. Richardson, of New Orleans, and Dr. John B. Roberts, of Philadelphia.

Secretary.—Dr. J. R. Weist, of Richmond, Ind.

Treasurer.—Dr. P. S. Conner, of Cincinnati.

Recorder.—Dr. J. Ewing Mears, of Philadelphia.

Members of Council.—Dr. W. F. Peck, of Davenport, and Dr. S. W. Gross, of Philadelphia.

The *next meeting* to be held beginning the second Tuesday of May, 1889, in Washington.

Chairman of Committee of Arrangements.—Dr. J. S. Billings.

AFTERNOON SESSION.

DR. W. T. BULL, of New York, read a paper on

THE SURGICAL MANAGEMENT OF TYPHLITIS AND PERITYPHLITIS.

He reported seventeen cases operated on by himself. These he divided into three groups: the first, including ten cases in which abscess was opened by incision without opening the general peritoneal cavity at periods varying from seven days up to six weeks from the beginning of the attack. All of these cases recovered.

The second group included six cases in which laparotomy was performed seven times for supposed perforation (one patient being operated on twice). The earliest operation was at the expiration of thirty-six hours, the latest on the fifth day. Death occurred in two of these cases, one from incomplete operation and the other from imperfect technique.

The third group contained but one case, but the author hoped that in the future more would be reported. In this case laparotomy was performed in the presence of threatening symptoms on the twelfth day of an attack of perityphlitis. No pus was found and no signs of recent peritonitis. The appendix was surrounded by old adhesions. The diagnosis of this class of affections was then referred to.

The operations described were laparotomy and simple incision of the abscess. Antiseptic precautions should be adopted in both. The incision for laparotomy should begin a finger-breadth above the right Poupart's ligament and extend upward four inches. The peritoneum should be divided at the lower angle of the wound. Adhesions are then separated, and any pus found, evacuated. The intestines should not be allowed to escape through the wound; the region behind the cæcum must be carefully examined. If there is perforation or gangrene of the appendix, it should be removed at its junction with the cæcum. After thorough washing out of the cavity a drainage tube should be introduced, passing to the bottom of the iliac fossa.

For opening an abscess, the incision should start from the point before mentioned and continue either parallel with the ligament or more vertical according to the position of the abscess. Incision may be required above and parallel with the crest of the ileum, if the maximum of tumefaction is found there.

A brief report of the cases operated upon was then given and the following conclusions presented:

Our present knowledge justifies the statement that both the cæcum and appendix may be the starting-point of an inflammation spreading to the peritoneum or to the peritoneum and cellular tissue of the iliac fossa constituting a complicated lesion which for convenience' sake we may call "perityphlitis." This may be in its clinical course

resolving or suppurative; each marked by definite symptoms in some cases, in others difficult to recognize.

Needle exploration is a justifiable and desirable method of diagnosis, though attended by some risks. These may be reduced to a minimum if care be taken to reserve the practice for cases in which the symptoms have lasted several days and in which a distinct indication, "tumor," can be made out.

Suppurative perityphlitis may be a spreading or limited (circumscribed) perityphlitis. Both begin with the same set of symptoms, and it is important to discriminate between them in the first twenty-four or forty-eight hours, or even on the third day.

The presence of any of the local or constitutional signs of general peritonitis justifies the diagnosis of a spreading or generalization, and calls for the performance of laparotomy and the repair of the lesions found.

The absence of these signs or their strict localization warrants delay of a varying length. Any time after a week the abscess may be opened by an incision which must reach the pus whether it be extraperitoneal or intraperitoneal.

In doubtful cases the risk of the operation is less than the risk of the disease.

The propriety of exploring and removing the appendix in recurring cases must still remain *sub judice*.

Dr. J. Ewing Mears, of Philadelphia, then read a paper on

THE PROPRIETY OF SURGICAL INTERFERENCE IN PERFORATING TYPHOID ULCER.

The present state of our knowledge and our largely accumulated experience have enabled us to define with a degree of exactness the limits of surgical interference in certain affections of the abdominal organs. The researches of Senn have shown that complete extirpation of the pancreas is invariably followed by death, while partial excision is a feasible operation. We are also able to define the limits of operation in affections of the spleen and kidneys. We may venture to approach the discussion of operative interference in perforating typhoid ulcer with the feeling that here we may be compelled to define a limit to the employment of surgical measures, not without regret at our inability to overcome the barriers which oppose success, but with a desire to maintain always the good repute of surgical science and art.

A clear distinction must be made between the widely different conditions which precede and follow perforation in typhoid ulcer and in ulcerations of the intestinal canal due to other causes. In typhoid fever, in addition to the intestinal lesions, there is a general degenerative process involving all the important organs. In traumatism the general condition of the patient may be good. In inflammatory conditions, while the general system may be profoundly impressed, the lesion may be regarded as local in its nature. In diseases of a chronic character, the system has accommodated itself to the impression made by the morbid affection, and the degenerative changes which may occur are not usually general in character.

The symptoms are usually quite distinctive. Death, as a rule, occurs on the second or third day; rarely the fatal result may be postponed two or three weeks, and instances are recorded in which recovery has taken place, adhesion having occurred between the edges of the perforation and adjacent parts.

A careful search of current medical literature reveals but four cases of surgical interference in perforating typhoid ulcer, in all of which a fatal result occurred. The reports of these four cases were given in detail. These cases were operated on by the following surgeons, Prof. Kussmaul, of Strasburg, Mr. T. H. Bartlett, of Birmingham, Dr. R. B. Bontecou, of Troy, N. Y., and Dr. T. G. Morton, of Philadelphia. In Prof. Kussmaul's case the disease was severe and perforation occurred early when the infective process was at its greatest height and the vital forces at the lowest point. In Dr. Morton's case the disease was mild, "a walking case." In both of these cases the shock consequent upon the perforation was prompt and profound. In the first case operation was performed within a few hours, but death without reaction from shock occurred in eleven hours. In Dr. Morton's case operation was resorted to twenty hours after the accident. Six hours after operation, the patient sank into a collapsed condition and died. The operations in these cases were performed by surgeons of experience, under strict antiseptic precautions and within a reasonably short time after the accident. We must, therefore, look for the cause of failure in the systemic condition; the degenerated and devitalized condition of the organs and tissues caused by the infectious process in active progress, utterly deprived of the power to resist the shock of operation; or in the condition of the structures beginning to recover from the effect of the poison in milder form, extremely sensitive to any rude impressions and wanting in tone and power of resistance. It is in the latter conditions alone that the surgeons may hope to achieve success by surgical interference, and then only when such methods are adopted as will reduce to the lowest point shock of operation.

The following propositions and suggestions were offered:

1. Surgical interference is not justifiable and should not be instituted in cases of typhoid fever in which perforation occurs when the infective process is at its height.

2. In mild cases of the disease in which the pyrexia has not been of high grade, and in which perforation occurs at the end of the third week, or later when the stage of convalescence is fully pronounced, laparotomy may be performed. Surgical interference in cases of this character is advocated with the hope that if the method of operation suggested by Lücke,—laparotomy with the creation of an artificial anus—be adhered to, success may be attained.

3. Rapidity of operation will be an essential factor in the achievement of success, through which prolonged exposure of the cavity will be avoided and shock greatly lessened.

Dr. B. A. Watson, of Jersey City, said that in cases in which perforation occurred the sooner operation is performed the better. He considered that it is safer to make an exploratory incision than to use the needle.

In regard to the paper of Dr. Mears, it covered the ground completely. In those severe cases of typhoid fever in which perforation occurs and life is about ebbing away, it would be folly to resort to operation; but in mild cases in which perforation occurs the operation should be done early.

DR. R. B. BONTECOU, of Troy, N. Y., had performed the operation in one case of perforation in the third week of typhoid fever; the patient, however, died. He thought that it would succeed in some cases, as in those in which perforation follows imprudence during convalescence.

DR. C. B. NANCREDE though that the proper place for incision was two inches to the right of the anterior superior iliac spine. He had operated in two cases; in the first there was no pus, but three or four perforations were found. This patient recovered. The second case was that of a child operated on four days ago. The patient had done well since the operation.

DR. GORDON, of Portland, referred to the absence of symptoms met with in these cases, and cited a case in which the symptoms were not distinct, but in which a pint of pus was found, with general peritonitis and perforation of the appendix. In this case an incision on the right side would not have reached the pus.

DR. D. W. CHEEVER, of Boston, reported a case in which strangulation of an old hernia occurred in the third week of typhoid fever, the patient not being seriously ill. A simple incision through the sac was made and the bowel replaced, but the patient did not rally from the shock.

DR. W. H. CARMALT, of New Haven, referred to a case which had come under his observation with symptoms of intestinal obstruction. Operation was suggested but refused. The patient died and the autopsy showed perforation of the appendix and extravasation of fecal matter. The appendix was attached deep down in the pelvis, where there was a small collection of pus. This was reached only with the greatest difficulty and after turning the intestines out of the abdominal cavity. This abscess was inaccessible to any of the ordinary methods of operation. The careful exploration of the rectum in this case failed to reveal any sign of disease.

DR. JOSEPH RANSOHOFF, of Cincinnati, thought that the general impression that perityphlitis is necessarily associated with perforation, was an error. There are two classes of cases. In one there is a distinct tumor and in these early operation is by no means indicated. In these cases adhesions have formed, and there is a natural tendency to cure. In these cases the abscess finally perforates the abdominal wall or is relieved by incision. The second class is that in which the symptoms of perforation develop suddenly. In these cases the incision should be median.

DR. T. F. PREWITT, of St. Louis, thought that there must be many cases of inflammation in the region of the cæcum that never suppurate. He recalled a number of these cases, two of which had died, one from perforation, and the other, an old man, from exhaustion incident to an intestinal affection. In almost all of these cases the patients had had three or four previous attacks.

DR. REGINALD H. FITZ, of Boston, held that the appendix was the seat of disease in the great majority of cases. The symptoms usually enable the physician to make a correct diagnosis. The use of the exploring needle was not considered advisable. The cæcum can always be readily found by remembering that it is attached to the colon.

DR. GEORGE W. GAY, of Boston, remarked that in the cases in which he had operated, recovery had followed in those cases in which offensive pus had been evacuated, while in those in which he had found only serum and flakes of lymph, a fatal result followed operation.

THURSDAY, SEPTEMBER 20TH.—MORNING SESSION.

DR. GEORGE W. GAY, of Boston, read a paper on

THE COMPARATIVE MERITS OF TRACHEOTOMY AND INTUBATION IN THE TREATMENT OF CROUP.

Dr. O'Dwyer's method of intubing the larynx, he said, has now been before the profession in a prominent manner about three years, and it is surely gaining favor, as its merits and its limitations are being more clearly understood. The operation has its advantages and its disadvantages. It gives relief to the dyspnœa and it saves lives. The statistics of recovery vary much, as in tracheotomy. Twenty-six per cent. is a fair average after intubation. The recovery rate in 327 tracheotomies performed at the Boston City Hospital was twenty-nine per cent. In about 100 cases of intubation performed at the same institution, the rate of recovery was twenty-six per cent., showing a slightly smaller percentage than the old operation. It is not claimed that these figures and facts are conclusive. The number of intubations is, as yet, too small to settle the question. The recovery of patients under three years of age was in the same proportion after each operation, namely, twelve per cent. O'Dwyer, Brown, and Waxham save about one in four after intubation; Huber and Montgomery save one in two; Northrup and Denhard save one in five; Jenning, one in ten; Chatham, one in fifteen; and A. B. Strong, one in thirty-one. This variation of results in the experience of different operators, proves conclusively that the type of the disease determines the result to a great extent—far more, in fact, than any mode of treatment. The conclusion on this point is that the new operation saves nearly or quite as many patients as did the old.

In regard to the facility of doing intubation, it may, like tracheotomy, be easy or difficult, according to the age of the child, the conditions of the larynx, and the strength of the patient. Both operations are difficult in children under three or four years of age, and both are attended with some danger. In tracheotomy the risk lies principally in hemorrhage and collapse. In intubation, it lies in pushing membrane, etc., down in front of the tube, producing more or less complete obstruction. In very weak children, collapse may result from prolonged efforts at placing the laryngeal tubes. Under these circumstances the surgeon should choose the operation with which he is most familiar. The old operation can be done with one good assistant. Intubation requires at least two fairly good ones. Unless great care be taken, the operator's finger may be severely bitten, which, in at least one case, has resulted in death.

It is desirable to have a physician close at hand for three or four days after both operations. If the tube must be allowed to take care of itself, intubation is preferable. If ordinary care, such as a good nurse or other clever person can give, is available in cases located at a great distance from a physician who can place O'Dwyer's tube, then the old operation is better, there being less danger of fatal obstruction and the question of feeding giving less anxiety.

The weight of testimony goes to prove that it is less work to take care of intubated than of tracheotomized patients. The time occupied in caring for the tube in

the latter class is largely taken up in feeding the former class of patients.

Northrup's statistics of 107 autopsies performed at the New York Foundling Hospital, go to prove that there is no such thing as "food pneumonia," as in no instance were signs of food found in the smaller bronchi. Dr. O'Dwyer advances the opinion that the secondary lung affections, especially pneumonia, are due to retained secretions, which, owing to the presence of the tube in either operation, cannot be ejected by coughing. Others hold that this complication is due to the fact that the air enters the lungs without first being warmed and moistened by passing through the nasal chambers. The author ascribes these affections to the natural tendency of exudative processes to extend in all directions, basing the opinion upon the fact that pulmonary complications are as frequent in cases not receiving surgical treatment, run the same course, and are as fatal as in those in which operation is resorted to.

While a wound in the skin is objectionable on general principles, yet the wound of tracheotomy gives little trouble and does little harm. The diphtheritic poison gains admission to the system before the wound exists, and the course of the disease, as regards sepsis, is the same after as before the operation. In only 6 of the 327 operations at the City Hospital of Boston was diphtheria in the wound noted; 3 of these cases recovered. Both tubes may produce ulcerations in the trachea, but the result is seldom serious.

Conclusions.—1. Intubation may be tried in all cases of croup.

2. It is preferable in young children and in cases in which the tube must be left entirely to itself.

3. It may be resorted to for euthanasia, provided the operator is reasonably expert and can do it without producing collapse.

4. Tracheotomy is called for in those cases in which intubation cannot be done or in which it fails to give relief; or in which the laryngeal tube is repeatedly ejected or requires frequent removal for cleansing. It may also be required in those cases in which sufficient food cannot be given while the O'Dwyer tube is in position. It is also preferable in cases situated at a distance from a surgeon capable of introducing the laryngeal tube.

5. The tracheotomy instruments should always be at hand in intubation in cases of emergency.

DR. H. H. MUDD, of St. Louis, said that intubation had been done as a precautionary measure in many cases in which tracheotomy would not have been thought of. Some of the good results of intubation are to be attributed to this fact. In most of his cases of intubation, in which the patient survived, he had found it necessary to resort to tracheotomy, patients have recovered after tracheotomy in whom intubation had proved unsuccessful.

PROF. THOMAS ANNANDALE, of Edinburgh, called attention to the value of the introduction of a tube through the glottis in cases of operations about the throat in which there was risk of suffocation or of hemorrhage into the trachea.

DR. HUBER, of New York, said that he had performed intubation in 94 cases, with recovery in 37. He does not operate early. He considers the internal use of bichloride of mercury as of equal importance as the intubation. There is an occasional advantage in using a small tube, with the expectation that it will be coughed out, and with it a portion of the membrane, and affording an opportunity for feeding while the tube is out.

DR. T. F. PREWITT, of St. Louis, said that in one case of diphtheritic paralysis he had, in order to avoid passage of fluid into the larynx, passed a catheter through the glottis and plugged the larynx with a sponge. This permitted the fluid to go into the œsophagus without risk of entering the trachea. After feeding, the sponge and tube were removed.

DR. D. W. CHEEVER, of Boston, advocated the disuse of anæsthetics in cases of tracheotomy, provided proper assistants can be secured. The operation is not accompanied by much pain. By avoiding the anæsthetic many of the risks of the operation are avoided.

DR. L. MCLANE TIFFANY, of Baltimore, then read a paper on

PREGNANCY AND OPERATIVE SURGERY: THEIR MUTUAL RELATIONS

The following conclusions were presented: 1. Pregnancy is a physiological condition and does not contraindicate a surgical operation. 2. During pregnancy temporary strain may be exerted on some organ—*e. g.*, kidney, inducing impairment of function. 3. A surgical operation upon a pregnant woman is to be conducted so as to avoid inducing abortion, in itself a serious accident. 4. The main cause of abortion after operation is sepsis. 5. The probability of sepsis after operation is increased if the patient is suffering from disease, either temporary or chronic. 6. Abortion may result from operation—shock perhaps. 7. Hemorrhage does not seem to produce abortion. 8. Union of fracture may be retarded by pregnancy. 9. Recorded cases show that the unborn child receives no evil impress when the mother is subjected to operation. 10. When a surgical operation upon a pregnant woman is under consideration, the function of all the patient's organs must be carefully investigated and regulated. An operation then conducted antiseptically may be expected to result as though pregnancy were not present.

DR. J. EWING MEARS, of Philadelphia, thought that while pregnancy was to be regarded as a physiological process in the native woman, it would not be considered in this light in the society woman. Another important point to be considered was whether the operation required was one of expediency or of necessity. In the latter case the surgeon must do his duty let the result be what it may; but whether or not operations of expediency were to be performed on the pregnant woman was a question only to be decided by further experience.

DR. P. S. CONNER, of Cincinnati, reported a case of subcutaneous operation for ankylosis of the knee in a woman who, it was subsequently learned, was six weeks pregnant. The operation was followed by severe septic infection, but this did not interfere with the normal course of the pregnancy.

DR. WILLIAM HUNT, of Philadelphia, raised the question whether or not in the case of inevitably fatal injury to a pregnant woman, as from burns, it was justifiable to run the risk of sacrificing the mother a few days sooner, when by so doing the life of the child might be saved, or must we wait until the last breath has left the body before making the incision?

DR. R. B. BONTECOU, of Troy, reported the case of a

rupture of an umbilical hernia in a woman seven months pregnant. The intestines were out four hours. They were then cleaned and replaced. The woman recovered and a healthy child was born one month later.

DR. L. MCLANE TIFFANY thought that, in the case suggested by Dr. Hunt, there could be no question as to the propriety of operation. By so doing one life may be saved.

DR. N. P. DANDRIDGE, of Cincinnati, read a paper on

NERVE-STRETCHING.

The following conclusions were presented: 1. That nerve-stretching should be condemned in all forms of central disease, such as tabes, myelitis, etc. 2. That it offers little prospect of relief in tetanus. 3. That it should be regarded as a reliable method in cases of persistent neuralgia and peripheral paralysis of sensation in the extremities. 4. That stretching the facial is indicated in tic convulsif. 5. That further trial is justified in reflex epilepsy. 6. That stretching the lingual should be tried in painful affections of the tongue. 7. That resection should always be preferred to stretching in the spinal accessory and in the branches of the fifth nerve, except the lingual.

AFTERNOON SESSION.

DR. DE FOREST WILLARD, of Philadelphia, read a paper on

NEPHRECTOMY.

Case 1. Gunshot wound of kidney.—Male, mulatto, aged seventeen, was shot July 10, 1887, at such close range as to burn the clothing and skin. He was able to walk one-fourth of a mile to the hospital, and the shock was but moderate. Symptoms of internal hemorrhage steadily increased, and when seen by Dr. Willard, four hours after the injury, the signs of collapse were imminent. The ball entered just above the eleventh rib, three and one-half inches from the spinous process. There was no wound of exit. Almost pure blood was voided from the bladder, and continued to flow freely. The entire left side of the abdomen was dull on percussion, and there was every evidence that there had been an escape of intestinal contents, as well as urine and blood, into the peritoneal cavity. Abdominal incision was, therefore, chosen as best suited to arrest hemorrhage, repair injured organ, and remove clots. The bladder was found full of blood, but uninjured. Ureters, the same. The huge hæmatocele was found to be retro-peritoneal, filling all the tissues in the loin, and downward into the pelvis. The left kidney was traversed by the ball from the centre of the rim to the infundibulum, and the renal artery and vein cut. Aseptic silk ligatures were applied, and the organ removed. The ball had passed behind the peritoneum without injuring other organs, and could not be found. No blood or feces were found in the peritoneal cavity. The site of the extirpation was thoroughly mopped with sublimate solution, 1 : 10,000, made with boiling distilled water, and the abdomen irrigated with hot distilled water. The utmost precautions were taken to prevent infection, and all the dressings were thoroughly antiseptic. The temperature during the next four days varied from 99.4° to 101.4°. About twenty ounces of slightly albuminous urine were secreted daily. The skin was kept active, and no signs of uræmia at any time made their appearance. The patient, however, died of loss of blood, shock, and exhaustion, eighty-six hours after the injury. At the post-mortem no blood or pus was found in the peritoneal cavity, and the adhesions between the serous surfaces were very slight. There was no pus at the site of nephrectomy, and the hæmatocele was perfectly aseptic. The ball had grazed the eleventh rib, passed just below the pleura without entering it, had perforated the diaphragm, left kidney, the renal artery, and vein and sheath of the aorta just at the origin of the renal artery, being found lying directly upon the aorta. The right kidney was healthy.

In his remarks he dwelt upon the advantages of abdominal incision, in which the probabilities of other organs having been injured were so great; as hemorrhage could be arrested, perforations repaired, and escaped fluid removed. Drainage through the loin or abdomen was not advisable, provided urine had not escaped into the peritoneal cavity before the operation. The hæmatocele, if large and retro-peritoneal, could not be thoroughly removed, and should, therefore, be allowed to remain undisturbed. All fluids in the abdominal cavity should be removed.

The three primary nephrectomies for gunshot wound thus far reported, have all been done by Philadelphia surgeons. Keen (*Trans. Amer. Surg. Asso.*, vol. v. p. 193) removed the left kidney of a girl of eighteen, in whom the ball had perforated the stomach, liver, spleen, and kidney. This patient died on the fifteenth day. Price (*Trans. Penna. State Med. Society*, 1888) removed the right kidney in a girl of fourteen, in whom the liver was also perforated. His patient recovered after multiple abscess of the liver. Dr. Willard's case died on the fourth day. In none of these cases was there anuria.

Case 2. Nephrectomy for tubercular kidney.—Female, aged thirty-two, married eight years, but never pregnant, Tubercular history of ancestry uncertain. Failing in health for ten months. Seven weeks ago first noticed tumor in right side of abdomen. Has had increasing pain in this region; this is now very severe at times. Has emaciated rapidly. Temperature varying from 99° to 101° in the evening. Diarrhœa quite constant. Passes large amounts of pus in the urine. Urine, one-sixth albuminous, but contains no casts, and no distinctive cell elements. Tumor rounded in form, occupies the space from the right renal region forward to linea semilunaris, and vertically from lower margin of liver to line of anterior superior spinous process. Indistinct dulness extending into pelvis. Resonance between liver and tumor. Tumor movable.

Diagnosis uncertain as to purulent kidney or sarcoma of kidney. The size of the tumor, and its projection forward, determined the selection of the abdominal median incision. The right side of abdomen was found filled with thick sacs, giving indistinct sense of fluctuation. From it extended downward two elongated masses, one evidently a pus-filled ureter, and the other a mass extending down from the external iliac muscle, and passing under Poupart's ligament. Puncture evacuated only a few drachms of pus, and did not diminish its size. Tearing open the sac, the kidney was found riddled with multiple abscesses. The vessels and the ureter lower down were tied with silk ligatures, and the kidney removed. The abdominal cavity was irrigated with distilled water, drainage tubes inserted behind the uterus and into the site of the nephrectomy, and the wound closed with one set of

sutures. The woman was exceedingly low during the operation, but rallied, so that the temperature rose to 99°, and she became perfectly conscious. Two hours after operation she suddenly sank and died.

Post mortem showed that behind the suppurating kidney, and in a separate sac, divided from it by a wall two lines in thickness, was another pus sac; this sac was three inches wide, and the pus had worked its way down the aortic, common iliac, and iliac arteries to Poupart's ligament. If nephrectomy had been attempted, this sac might have been drained and the kidney never reached at all. No hemorrhage after operation. Death from shock; the other kidney was enlarged, but not diseased.

DR. W. W. KEEN, of Philadelphia, believed that blood exuded between the folds of the peritoneum was not a source of danger, and that it might be left without interference. If we could make out that the kidney alone was injured, the lumbar incision would be the proper one. Where there is a probability of injury of other structures, the abdominal incision is the best.

DR. JAMES MCCANN, of Pittsburg, reported a case of nephrectomy for multiple abscess, in which the patient died suddenly six hours after operation.

DR. L. MCLANE TIFFANY, of Baltimore, held that in simple gunshot wound of the kidney the proper plan was to drain the kidney through the lumbar region and not to perform nephrectomy.

DR. CHARLES T. PARKES, of Chicago, reported a case of gunshot injury of the abdomen, in which, in addition to a number of perforations in the bowel, the ball entered the kidney. The intestinal wounds were closed. No operation was performed on the kidney. The patient died from hemorrhage from the kidney twenty-four hours later.

DR. KEEN thought that in the condition referred to by Dr. Tiffany the proper plan was to drain, but when there is much injury of other parts, the patient will stand a better chance if the wounded kidney is removed.

DR. ROBERT F. WEIR, of New York, said: If there is simply a gunshot wound of the kidneys, the organ should be thoroughly exposed in order to ascertain the extent of the injury. Their thorough drainage should be employed, and to guard against hemorrhage the wound should be tamponed with iodoform gauze.

DR. H. H. MUDD, of St. Louis, reported a case of lacerated wound of the kidney, in which drainage was adopted. Irregular fever and loss of strength supervened, and fifty-one days after the injury the kidney was removed. The whole organ was in a state of parenchymatous nephritis.

DR. C. B. NANCREDE, of Philadelphia, had, in his paper last year, recommended that in gunshot wounds of the abdomen, involving the kidney, an attempt should be made to save the organ, when that was possible. He had also suggested packing of the kidney to prevent hemorrhage.

DR. R. N. ISHAM, of Chicago, considered hæmaturia a pathognomonic sign of injury of the kidneys. There are two forms of laceration of the kidney, those in which the capsule is involved in the injury, and those in which it is not. In the first, operation will probably be required. In the second, no operative procedure may be required.

DR. DAVID W. CHEEVER, of Boston, then read a paper on

SHOCK.

The operative surgery of our time has annulled pain, arrested hemorrhage, and averted septic absorption, but it has not prevented shock. The object of the paper was to inquire whether or not modern surgical procedure had diminished shock, wherein it fails to do so, and to suggest improvements of its defects. A simple description of the degrees of shock is, apprehension, fluttering, sweating, chilliness, pain, vertigo, nausea, faintness, convulsions, unconsciousness, and collapse. Moderate shock terminates in reaction. Severe shock is more lasting, and is a condition in which a feather turns the scale against the patient. An operation at this period causes renewed and prolonged shock. The effect of modern surgery has been to diminish primary shock, and to increase secondary shock. The time of an operation since the introduction of anæsthetics has been much prolonged. Do we realize what this prolonged cutting, pinching, and dissection mean to the nervous system? It is unphilosophical and fatal to operate in cases of primary shock before reaction has come on. The golden moment of fairly established reaction must be seized before traumatic fever sets in. This moment comes in from six to eighteen hours after the injury, or it never comes. Anæsthesia does not diminish the existing shock, but only annuls the additional shock from pain produced by cutting. If prolonged, it adds to the secondary shock. There is lowering of bodily temperature after operation under anæsthesia, even to 97° or 96°. This is due to the anæsthesia, which, if prolonged, ends in dripping sweat, to careless exposure of the patient, and largely to antiseptic irrigation, and to the application of cloths wet with antiseptic solutions around the seat of injury. Nausea frequently follows anæsthesia. This is one of the marked symptoms of severe shock. It is a most dangerous factor in preventing reaction.

In order to diminish shock: 1, wait for reaction; 2, never neglect to calm the mental shock by a cheerful word and personal presence; 3, give alcohol a quarter of an hour before anæsthesia; 4, make the anæsthesia short; 5, operate as rapidly as possible; 6, as short dressing as possible; 7, avoid chilling of the patient.

To promote reaction after operation: 1, persistently and carefully applied dry heat; 2, liquid nourishment combined with a stimulant, and a little laudanum by enema; 3, subcutaneous injection of brandy; 4, aromatic spirits of ammonia by the mouth; 5, black coffee and brandy—the stimulant *par excellence*, when it can be retained by the stomach; 6, quiet, a more than horizontal position, sleep, assurance that all is over and doing well.

Modern surgery has won three great triumphs: 1. It substitutes sleep for pain. 2. It averts secondary hemorrhage by animal ligature. 3. It prevents fermentation by germicidal applications. Can we add a fourth, by stilling the nervous system and averting secondary shock?

DR. W. W. GAY, of Boston dwelt upon the importance of preserving animal heat. He is in the habit of using a small dose of morphia hypodermatically ($\frac{1}{20}$ to $\frac{1}{12}$), before beginning a capital operation. If the operation is a severe one, the patient is not removed from his bed, and is given only a few whiffs of ether to obtund the pain of the first incision.

DR. C. B. NANCREDE is in the habit in cases in which it is doubtful whether or not the patient has recovered sufficiently to bear an operation, of employing the "ether

test." If after the administration of an anæsthetic is commenced, the pulse and the general condition improve, the patient will stand the shock of the operation.

If, however, the respirations increase in rapidity, and the pulse becomes frequent and weak, the ether is removed. These patients never react. Shock is often kept up by a crushed limb. In these cases the condition often rapidly improves when the limb is removed. In order to favor the flow of blood to the head, and to overcome the consequence of its collection in the abdominal vessels, he had employed elevation of the limb and the application of the Esmarch bandage.

DR. LANGE, of New York, thought that the influence of loss of blood in the production of shock, was underrated. He could not recall an instance of prolonged operation in which shock followed, provided extreme loss of blood was prevented. In operations in which loss of blood was apprehended, he employs large rectal injections of hot water.

DR. B. A. WATSON, of Jersey City, referred to the experiments which he had made showing the influence of ether and chloroform on temperature.

DR. DAVID PRINCE, of Jacksonville, recommended the use of small doses of morphia with tincture of digitalis hypodermatically to guard against reflection and depression. He considered reflection an important cause of shock. He also advised that the temperature of the part operated upon should be maintained.

DR. B. A. WATSON moved that a vote of thanks be extended Dr. C. H. Mastin, of Mobile for his efforts in introducing and perfecting the plan of organization of the

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

This motion, seconded by Dr. E. M. Moore, of Rochester, and by Dr. William H. Pancoast, of Philadelphia, was unanimously adopted.

After extending to the retiring officers a vote of thanks, the Association adjourned to meet in Washington, the second Tuesday of May, 1889.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirteenth Annual Meeting,
Held in Washington, September 18, 19, and 20, 1888.

(Specially reported for THE MEDICAL NEWS.)

(Concluded from page 343)

SEPTEMBER 18TH.—AFTERNOON SESSION.

SIR SPENCER WELLS, of London, read a paper entitled

CASES OF OVARIOTOMY PERFORMED TWICE UPON THE SAME PATIENT.

During the past three months he had twice performed ovariotomy upon subjects who had previously submitted to the same operation at his hands, one twenty-four years previously, and the other eight years previously. His entire experience with the secondary operation includes sixteen patients. The causes were various, trouble from the stump, neuroses, tumor in the other ovary, etc. Olshausen reports a case in which he had performed laparotomy five times upon the same person, the patient dying one year after the fifth operation; all of these operations were done in the course of six years. The speaker believed that if a patient recovered from an ovariotomy in which only one ovary had been diseased, the chances that the other ovary would also become diseased were relatively few, perhaps not more than one in fifty.

DR. T. GAILLARD THOMAS, of New York, could recall six cases in which he had performed ovariotomy twice upon the same patient. In none of these had any trouble respecting the first operation been the cause for performing the second. In none of the cases did he discover any traces of a ligature upon the stump of the first operation. He differed with Sir Spencer in regard to the removal of the second ovary, and made it a rule to take it away if there were any good excuse for doing so, as it did not materially enhance the danger of the operation and effectually prevented the recurrence of ovarian disease.

DR. GOODELL, of Philadelphia, had performed the secondary operation in two cases. He agreed with Dr. Thomas as to the desirability of removing both ovaries at one operation, and especially if the patient is near or has passed the menopause.

DR. JAMES B. HUNTER, of New York, had performed the secondary operation in three cases. Unless the second ovary was decidedly diseased at the time of the first operation he did not usually remove it.

DR. HOWARD A. KELLY, of Philadelphia, referred to certain statistics in Sir Spencer Wells's book in which he had shown that of two hundred and twenty-three women upon whom ovariotomy had been performed one hundred and seventeen children had been born, only two of whom had died at birth. This might be considered an argument in favor of retaining the second ovary.

SIR SPENCER WELLS, in closing, observed that he did not consider the presence of a few enlarged follicles in an ovary sufficient evidence of disease to warrant its removal. He did not question the propriety of removing the second ovary in old women, nor in young women in whom the second ovary was diseased to any considerable extent.

DR. WILLIAM T. LUSK, of New York, read a paper upon

THE NEW CÆSAREAN SECTION.

Careful study of the questions involved in connection with the Cæsarean operation led him to the conclusion, years ago, that changes must be made in order to put the operation upon a proper basis. Such changes had been formulated by Sänger, and the speaker gave him all praise for the work which he had done. The rules of Sänger had been put to the test by obstetric surgeons and with the exception of his recommendation to exsect portions of the muscular structure of the uterus these rules were generally followed. Those who belittle Sänger simply follow historic precedent in such matters; witness the experience of Sims in his efforts concerning vesico-vaginal fistula. During the past year the speaker had performed three Cæsarean sections, all resulting favorably to both mothers and children. The first case was operated upon to avoid craniotomy and had been reported at length. The second case was in a woman with advanced carcinomatous disease, and in very bad general condition, and who died sixty-two days after the operation from the cancerous disease. In the third case the patient was weak and anæmic, labor pains having begun six and a half days before her entrance into the

hospital. She was rachitic, and craniotomy would certainly have been fatal to her. On the ninth day from the operation she was taken with catarrhal bronchitis, and this was followed by double pneumonia. The child died thirty-six hours after birth from trismus. A plea was made that the Society should undertake a series of investigations having for their object the proper regulation of operations for Cæsarean section.

In justo-minor pelves with a conjugate of not less than three and a third inches, normal delivery can usually be accomplished. Cæsarean section is indicated in cases in which craniotomy has been required in previous labors, in cases of flat pelvis with a two and a half inch conjugate, and in justo-minor pelves with less than three and a third inches conjugate. In deciding between craniotomy and Cæsarean section it should always be considered that the mother's life is of the greater value, hence in some cases craniotomy must be the operation of election. Dohen's table of statistics giving a mortality of twenty-seven per cent. for this operation was out of date, having been prepared before the days of antiseptic surgery. The most recent statistics show a percentage in favor of craniotomy, and Leopold and others have clearly set this forth to check too great enthusiasm for Cæsarean section. The question as to the choice of operations should always be left to the patient and her friends. In cases in which the natural passages are obstructed by tumors or malignant disease it is useless to try and deliver by those avenues. In America the Cæsarean operation had thus far had only forty per cent. of recoveries. The conditions of obstruction to labor should be recognized early, and the relative chances in both operations should be carefully weighed. Thorough cleanliness and disinfection of everything which is to be concerned in the operation are cardinal points, there should be plenty of assistance at each step, it had better be done by daylight, and can generally be done more satisfactorily in a hospital than in a private dwelling. The uterus should be secured by an elastic ligature before it is incised; the suture may be of silk or silver; Leopold uses catgut. One must be certain, by auscultation before the operation, that the fœtus is alive, otherwise the operation is not indicated. The incision should extend from the umbilicus to the pubes, half a dozen long ligatures should then be passed through the edges of the wound, after which the uterus is to be turned out of the abdomen at right angles to the body, and enveloped in hot towels. The uterine incision should be four to five inches long, and the placenta should be quickly detached with the fingers. The elastic ligature will effectually control all hemorrhage. Then the uterus is to be irrigated, the water being allowed to pass out through the vagina. Through the muscular tissue of the uterus eight to twelve sutures should be passed, half an inch from the edges of the wound, the peritoneum being subsequently closed with fine silk or catgut. After the abdominal wound has been closed a full dose of ergot should be given. Fluid food should be given almost as soon as the patient recovers consciousness, and there need not be much fear of vomiting. The more constant and faithful the watching during the subsequent weeks the better will be the chances of recovery. The sutures should be removed in the course of eight to fourteen days. Without the greatest care and all necessary precautions such patients are not likely to get well.

DR. HOWARD A. KELLY reported two cases of Cæsarean section, performed during the past year, one on absolute, the other on relative indication. The first patient was a dwarf, with justo-minor pelvis and two and a half inches conjugate; mother and child saved. The second was a suitable case for craniotomy, but the mother wished a living child, and elected the operation. She recovered, but the child survived only a short time.

DR. H. J. GARRIGUES, of New York, also reported two cases of Cæsarean section, the first being fatal, in a woman with kyphotic pelvis. The second was in a woman with justo-minor pelvis, and was favorable to mother and child. The speaker agreed with Dr. Lusk in the advantages of a hospital for this operation, as compared with a private dwelling, and also in the necessity for many assistants. For ligatures, he believed that silk offered many advantages over catgut, the latter being more difficult to tie, and more liable to slip. Turning out the uterus before extraction of the child, after Müller's method, was to be commended. He was unwilling to accord so great praise to Sänger's labor as did the reader of the paper. He had merely formulated what others had written, and his only original suggestion—namely, to exsect portions of the muscular tissue of the uterus—was now not considered advisable. The speaker's first operation was performed before he knew of the existence of Sänger, and yet it had been recorded by the latter as a Sänger operation. Those who are entitled to most praise and gratitude in this connection are the ones who have introduced antiseptic measures, and who have given us a good method of suturing.

DR. GEORGE J. ENGELMANN, of St. Louis, thought that the results from craniotomy in Europe would be better but for the fact that patients requiring this operation are usually in very bad condition when received at the hospitals. Cæsarean section cases are usually prepared for the operation beforehand.

DR. WILLIAM M. POLK, of New York, had had two fatal cases of Cæsarean section during the past year. In the first case the woman was far advanced in extensive cancerous disease, and lived only fourteen hours after the operation. In the second case the patient had a kyphotic pelvis, with a three-inch conjugate, the operation being performed with all possible precautions, six hours after labor had begun. The only possible neglect was that the uterus was not washed out after it had been emptied of its contents. The patient died in forty-eight hours, from septic peritonitis.

DR. LUSK remarked, in conclusion, that Cæsarean section must never be considered as anything but an operation of last resort.

DR. T. GAILLARD THOMAS, of New York, read a paper entitled

THE ETIOLOGY, PATHOLOGY, AND TREATMENT OF ANTEFLEXION OF THE UTERUS.

He thought there was too great a tendency at the present time to devote excessive attention to things which were new, while conditions which had heretofore been well recognized were being overlooked. There are things still to be learned concerning these well-recognized conditions, among them being that of anteflexion, which is ignored by some teachers and writers. Four varieties were proposed in the treatment of the subject: 1st, that form in which the body alone is

bent; 2d, that in which the cervix alone is bent; 3d, that in which both body and cervix are bent and irreducible; 4th, that in which both are bent and reducible. Each form requires separate and distinct treatment. The term *congenital deformity* of the uterus was considered a bad one, and was not included in the author's classification. Deformity of the uterus did not exist at birth, but was the result of faulty development. The irreducible uterus began to be deformed about the age of ten years, as puberty approached, from various causes, and was intensified by such causes as tight-lacing and constipation, these being potent causes in bending the body or the neck, or both. Flexion may also be produced gradually as the result of poor nutrition; as Graily Hewitt has shown, it may be caused by the pressure influence of tumors, by uterine catarrh, peritonitis, etc. He could not agree with those who considered anteflexion an insignificant condition; between the ages of fourteen and fifty years it might prove of very great significance, some of its effects being vesical irritation, gastric disorder, and various nervous troubles. The prognosis of anteflexion as regards a cure is often bad, but many cases may be greatly relieved by suitable means. Good results should not be expected if cases are treated as though the condition were not of great importance, and even cases which have been well treated frequently suffer relapse, even though the misplacement may have been corrected for months. After serious tissue changes in the organ have once taken place repair is either difficult or impossible. The method which is too commonly adopted of treating this condition with medicated tampons and ill-adjusted pessaries is very apt to prove a failure; each case is a study by itself. An attempt should first be made to replace the organ with the finger and the sound, and then, if the case is a suitable one, a pessary of proper shape and size may be adjusted. Either the Thomas, Hewitt, or Cutler pessary will be appropriate in certain cases, and it may be necessary to substitute one for another of different form from time to time. After the flexion has been overcome the speaker uses a glass intra-uterine stem with a vaginal support of hard rubber, and additional means of treatment are to be had in tonics, electricity, and an abundance of nutritious food. The pessary is usually retained six months. In severe cases of flexion of either the neck or the body dilatation should first be performed; the speaker suggested the instrument of Goodell, before the glass stem is introduced. The patient should be taught to remove the instrument herself if it causes pain. Severe cases of cervico-corporeal anteflexion should be submitted to Sims's operation of posterior section, or, if this be unavailing, the cervical portion should be amputated. The direction of the canal would thereby be much improved, dysmenorrhœa would be relieved, and, in some cases, sterility would be overcome.

DR. GRAILY HEWITT, of London, opened the discussion. We should remember, he said, that anteflexion was often a long time in coming on; it developed gradually, perhaps during years, and when it was accomplished the tissues of the uterus had lost their normal power of resistance. The classification of the reader of the paper seemed to him a satisfactory one. Curability of this condition must often be very difficult if we remember the changes in density, in structure, in relations to which the tissues in question have been subjected. He agreed with the reader that this condition had been too slightingly regarded in certain quarters, especially as to its influence in producing stenosis, abortion, and other serious conditions or accidents, which may often be avoided if this cause is recognized and treated. In place of amputating the cervix, as suggested by the reader, he had found it useful to excise a portion of mucous membrane in the posterior vaginal wall between the posterior aspect of the cervix and the posterior fornix, draw the cervix backward, and secure it by sutures to the posterior wall, thus straightening the uterine canal.

DR. W. O. PRIESTLEY, of London, thought the diagnosis of anterior displacements was not always easy or clear. He remembered that Churchill had once said that in all his experience he had never seen a case of anteflexion. It was desirable that more complete statistics should be published concerning the frequency of certain symptoms which were believed to be common with anteflexion, and also as to the extent to which treatment of them had been effective. He believed that too much attention had been given to this subject, perhaps owing to a miscomprehension of the teachings of Graily Hewitt. Discrimination should be made between those forms of this condition which give rise to symptoms and those which do not; and statistics would also be useful which should show the extent to which anteflexion alone caused appreciable symptoms requiring treatment.

DR. E. VAN DE WARKER, of Syracuse, N. Y., recalled the paper upon anteflexion and its treatment, which had been presented by him to the Society ten years ago, and in which he presented views identical with those in the reader's paper. The reader at that time showed a lack of sympathy with his propositions, and he was very glad that his conversion was evidenced by the paper which he had presented. The speaker had never seen a case of anteflexion with which there were no symptoms, but symptoms varied greatly in degree and intensity. Symptoms might not appear until the complete functional life of the organ began—that is, after marriage. They might also be associated with hysteria and other nervous symptoms. With the conversion of Dr. Thomas it only remained for Dr. Emmet to withdraw statements in his book concerning the iniquitous stem-pessary.

DR. H. P. C. WILSON, of Baltimore, agreed with the statement that anteflexion seldom occurred suddenly; in other words, it was a progressive condition. The most frequent of all causes was constipation, the frequency of which in women is well known. He believed that the present system of educating girls was largely at fault for many cases of this condition. This system was a forcing system, too much being crowded into too few years. Pessaries were undoubtedly of use in some cases, but the speaker had never seen any benefit derived from their use, and he had experimented with all kinds. In cases of anteversion he had seen useful results follow the use of the pessary. He was in the habit of treating anteflexion by Sims's operation of posterior section, dilating the canal after the wound had cicatrized. In nineteen out of every twenty cases of antetlexion there are associated sterility, constipation, and more or fewer nervous symptoms.

DR. BACHE MCE. EMMET, of New York, agreed with the teachings of Dr. Thomas Addis Emmet that anteflexions which gave rise to no symptoms required no treatment. The cause was usually in some preëxisting inflammation

and this, not the displacement, usually called for the treatment. He thought the evidence of this was seen in the fact that if the uterus were raised in the pelvis the symptoms which had been attributed to the displacement disappeared. An ordinary retroflexion pessary accomplished this end without the necessity of resorting to those which were designed for adjustment in the anterior vaginal fornix.

Dr. W. Goodell, of Philadelphia, believed that anteflexion *per se* had no symptoms except such as arose from dysmenorrhœa and sterility. He agreed with the reader in the propriety of using the intra-uterine stem in treating this condition if symptoms seemed to indicate it, but did not think such indications frequently existed. Sterile women and virgins were most likely to present symptoms in connection with anteflexion; it was also of frequent occurrence among the hysterical. For all classes of cases tonic treatment would be beneficial. The speaker never treated this condition by posterior section, his limited experience with the operation having been most unsatisfactory. He frequently practised dilatation for anteflexion and seldom used pessaries.

Dr. W. Gill Wylie, of New York, differed with his teachers, Drs. Thomas and Hewitt, regarding the mechanical theory of displacements. He regarded cases of anteflexion as illustrations of imperfect development, and treated them in accordance with that view. The means which he used were stimulating general and local treatment, dilatation, and drainage. The benefit to be derived from an intra-uterine stem was from its dilating and stimulating influence and the improvement to nutrition which it caused. Flexions might exist without symptoms in his opinion. Sims's operation was indicated for some cases, but he believed it well to omit the incision in the anterior uterine wall, cutting the posterior alone. Ball's method of dilatation combined with section of the posterior lip of the vaginal portion was the best plan of treatment of which he knew.

Dr. Thomas, in closing, admitted with Dr. Wilson that pessaries were not useful in cases in which the womb was irreducible; he had made such a statement in his paper. He was not yet convinced that Sims's operation was not good for certain cases. The object of the intra-uterine stem as a means of treating anteflexion was to produce changes in the innervation and circulation, not merely to cause distention.

Wednesday, September 19th.

Morning Session.

Dr. Thaddeus A. Reamy, of Cincinnati, read a paper on

Amputation of the Cervix in Fifty-five Cases of Cancer.

These were all selected cases, and were operated upon between the years 1876 and 1886. Certain points in regard to this disease were accepted, among them, that its predisposing cause was not known, and that medical treatment of it was unavailing. The accumulating results of surgical treatment tended to show that, in some cases, life could be saved if they were seen sufficiently early in the history of the disease. There was nothing peculiar in the method by which these operations were performed. In some cases the peritoneal cavity was accidentally opened, but without serious result. In those in which this accident did not occur the wound was touched with bromine. No rule was followed as to the quantity of tissue to be removed; the speaker was governed by the extent of the disease in each case, so that in some the section was made at the vaginal junction, in others it was carried to the os internum. The aim in all cases had been to cut widely, rather than deeply, with reference to the diseased tissues. In the greater number of cases it was found that the disease began in the pavement epithelium of the vaginal portion, and spread thence to the vagina with a tendency subsequently to invade the parametrium, and infect the general system, instead of working inward to the cylindrical epithelium of the uterine canal, and thence into the deeper structures. This furnished a hint to the advisability of cutting widely, rather than deeply, as was his plan. The idea of the reader's operations has been conservatism; that is, that no unnecessary tissue should be removed. For this reason the supra-vaginal amputation is preferred to vaginal hysterectomy in cases in which the disease began in the vaginal portion. It was also probable that by the former operation more of the readily infiltrated vaginal tissue would be removed than by the latter. Of the 55 tabulated cases, death had resulted from the operation in 2. During the ten years which were covered by the table there had been recurrence in 29, at periods ranging from a few months to several years from the operation. The rest had apparently been cured. To this table two other cases could be added in which operations had been done respectively nine and fifteen years ago, and in which there had been no recurrence. The diagnosis of cancer was established in most of the cases by the microscope, in the others the clinical evidences were deemed sufficient.

Dr. W. H. Baker, of Boston, opened the discussion. He referred to the useful work which was being done at the Woman's Hospital during his residence there, in connection with this disease, by Sims, with knife, scissors, and chemical cautery, and Thomas, with the actual cautery, and expressed great regret that that work should have been cut short by the decision of the governing authorities at that hospital, that cancer must not be treated there. The operation which had been described by him was a modification of Sims's as well as of Schroeder's supra-vaginal excision, and consisted in amputating the vaginal portion, and then cutting out a cone of tissue from the body of the uterus with a knife, the apex of the cone being the fundus. Of the ten cases which had been reported by him as thus treated, five were still living in six to ten years from the time of the operation, another had died within a year, with no return of the disease. In the speaker's opinion this operation was preferable to total extirpation, which should be limited to cases in which the body was diseased, and in which the infiltration extended upward, rather than laterally.

Dr. John Byrne, of Brooklyn, N. Y., had operated for cancer of the cervix with the galvano-cautery, many hundreds of times. His tables were not yet ready, but he could state that a large percentage of his cases had lived five, ten, or fifteen years after the operation, with no recurrence. In no case upon which he had operated had the disease ever recurred in the stump, though it might have appeared elsewhere.

Dr. E. Van de Warker, of Syracuse, N. Y., referred to the work which he had been doing with the chemical cautery, for cancer of the cervix. It was a method which

was available after nothing more could be done by knife or scissors. In recurrent cases, he first used the sharp curette, and then applied the chloride of zinc to the wound. He recalled a case in which seven such operations had been performed during the past six years.

Dr. Reamy, in closing, said that he had been in the habit of using the chemical cautery as Dr. Van de Warker had described, and could testify to its value. The reason why many of the profession were wont to look upon cancer as always incurable, and always refused to operate for its relief, was because the cases were usually seen when a radical cure was impossible. Many could be cured if they were seen sufficiently early. The value of the supra-vaginal amputation over complete removal of the uterus, was recently recognized by John Williams in his Harveian lectures, and was recommended as sufficiently radical if an operation were indicated.

Dr. Robert Battey, of Georgia, then read his

PRESIDENTIAL ADDRESS.

He referred to the formation of the Congress and the meeting in Washington which had led to a change in the place for holding their annual meeting the latter having been appointed for Boston. He had taken the responsibility of directing the change only after having obtained almost unanimous consent from the Fellows. The Society had been organized and was continued not in the interests of medical politics, but solely for the advancement of science. The plea which he made was that the Society should increase its membership. Though their number was limited to 100, they had never exceeded 58, with an average number of 51 and an average attendance of 29. Statistics were given showing various features of their work at the different meetings which had been held.

The theme for the remainder of the discourse was the basis upon which merit in discovery should rest, the view which obtained upon this subject at common law and under certain statutory restrictions, also the equitable view which should obtain upon the subject among honorable medical men, the necessity of asserting proofs, and the reasonable alternative that if proofs were not presented within a reasonable time the claim should lapse.

Dr. E. C. Dudley, of Chicago, read a paper on

THE TECHNIQUE OF VAGINAL HYSTERECTOMY.

The most recent statistics of Leopold, Klatz, Standi, and others were read, showing the comparatively small mortality of the operation at the present time, and this was advantageously contrasted with the results which were obtained soon after the operation may be said to have had its revival. One of the most important features of the operation is a perfect hæmostasis, and this is now more readily secured by means of forcipressure forceps after the method of Péan or Richelot than by any other. His own method of separating the uterus from the surrounding structures was described, nothing unique being claimed for this portion of the operation. The broad ligaments were then clamped with a sufficient number of forceps, the uterus was cut away and small bleeding points were secured with catch forceps. He thought it was well to follow Leopold, who does not turn the uterus either backward or forward, but drags it directly out. The only advantage in closing the peritoneal wound was to prevent infection from the vagina. As the pressure forceps drag the stumps of the broad ligaments into the vagina, there is no fear of infection from them. The forceps also serve every purpose for drainage. They should be allowed to remain in position from forty-eight to seventy-two hours. Those which secure the smaller vessels could be removed in twenty-four hours. It was not thought necessary that one should be particular to remove the ovaries and tubes. A vulvar pad might be used to the exclusion of any other dressing. It seemed possible to the speaker that a combination might be made in laparotomy and vaginal incision in the removal of large carcinomatous uteri, and large myomata of the uterus, the pressure forceps securing the stumps in the vagina as in ordinary vaginal hysterectomy, the tumor itself being removed through the abdominal opening. So far as the speaker was aware, this plan had not been suggested by anyone previous to himself. He also read a personal letter from Péan in which he demonstrated his priority of use of pressure forceps for securing the stumps of the broad ligaments in the vagina.

Dr. J. B. Hunter, of New York, had operated in four cases with the broad ligament forceps, three of them being successful. He objected to the forceps devised by the reader of the paper as too weak in their grip. He preferred Richelot's instrument as modified by Polk.

Dr. H. T. Byford, of Chicago, Ill., had used the method in question in four cases; he had not given up the use of the ligature, however, and believed it was sometimes the more appropriate.

Dr. Thaddeus A. Reamy, of Cincinnati, thought that no more shock was, as a rule, experienced by a patient after vaginal hysterectomy than after ovariotomy. The forceps shown by the reader seemed weak, but if they were strong enough to prevent hemorrhage, they would also serve the useful purpose of hastening the sloughing process. The forceps were better than the ligature in the latter respect.

Dr. Lane, of San Francisco, stated that he was the first one in America who performed vaginal hysterectomy. He reached his conclusions as to the feasibility of the operation after a series of dissections upon this portion of the body. He had operated fourteen times since 1877. He considered this one of the safest of the capital operations, and had found very little difficulty in controlling hemorrhage. If the broad ligaments were out of reach for the ligatures, the case might usually be considered inappropriate for operation. He had always used ligatures upon the broad igaments, never forceps. The operation was much easier in thin than in fat women; his second operation was done in twenty minutes. His principal care was to avoid the uterus and the rectum. Of his fourteen cases, three have been permanently cured.

Dr. Dudley, in closing, simply said that he had referred to certain steps in the operation as *easy* because they seemed easy to him while operating.

Afternoon Session.

Dr. C. M. Green, of Boston, reported a case of

RUPTURE OF THE UTERUS IN LABOR AT TERM,

the child born alive, the mother subsequently having a full-term child in normal labor.

The patient in this case had a flat rachitic pelvis with

a three inch conjugate. The cause of rupture was unknown. The point was made that if a patient survived rupture of the uterus a few hours she had a fair chance of recovery. Subsequent progress would depend upon the presence or absence of hemorrhage; in the former case laparotomy should be performed. The rupture in question occurred during the patient's third labor, the occiput presenting anteriorly. After a period of three years a fourth labor took place, an eight pound child being normally delivered.

DR. T. PARVIN, of Philadelphia, thought that the great question in such cases was always that of drainage. A posterior rupture is favorable to drainage, an anterior one is not, and usually indicates laparotomy.

DR. GRAILY HEWITT, of London, read a paper on the

SEVERE VOMITING OF PREGNANCY.

As this symptom was occasionally the cause of death, the old saying that "a sick pregnancy is a safe one," could not be literally true. Whether this condition led to a fatal issue or simply be very annoying it may arise from a variety of causes, as shown by Anketan in his work published in 1865. Duncan has considered the condition as showing the common reflex form of vomiting with various grades of symptoms even proving fatal occasionally, and pernicious vomiting which may be associated with disease of the liver or other glandular organs. Lower has also made interesting contributions to the subject. Other possible causes would be emotion, alcoholism, and various displacements and disorders of the uterus, to the latter of which attention and investigation have been directed by the efforts of the reader. Of all the causes which were tabulated by the author it appeared that anteflexion most frequently stood in this position toward vomiting of pregnancy. The severer degrees, with impaction, incarceration, and induration, were, of course, much more mischievous in their effect, but in all of them the condition was usually influenced favorably by treatment. In some cases it was merely necessary to restore the organ to its proper position, in others dilatation was effective. Applications of cocaine to the cervix were occasionally helpful. In addition to the distressing symptom of vomiting there were sometimes associated pain in one side of the pelvis, sensitiveness of the vagina and uterus to the touch, frequency of micturition, etc.

DR. FORDYCE BARKER, of New York, had observed that the vomiting of pregnancy was largely a matter of temperament, a peculiarity analogous to other peculiarities which individuals show. The changes in the vascular and nervous apparatuses of women during pregnancy were so decided that it was not difficult to understand why such phenomena did appear. Though anteflexion was frequently associated with this condition, the speaker could recall instances of anteflexion in which they did not coexist. The condition was frequently a neurosis.

DR. A. J. C. SKENE, of Brooklyn, agreed with Dr. Barker that the condition in question most frequently occurred with women of delicate organization. It was quite likely to coexist with endometritis especially of the corporeal variety.

DR. W. GILL WYLIE, of New York, favored treating the vomiting of pregnancy by Copeman's method of dilatation of the uterine canal, which was referred to by the reader. He would modify that method, however, by limiting the dilatation to the cervical canal. This method had cured three-quarters of the speaker's cases.

DR. GRAILY HEWITT, in closing, thought too much stress was generally laid upon neurosis as a cause of vomiting; the term was too vague. In the treatment of simple cases rest in the horizontal position was frequently all that was necessary. The diagnosis and cause of the condition were the most essential features; the treatment became easy subsequently.

DR. WILLIAM M. POLK, of New York, read a paper on

THE TREATMENT OF CHRONIC ENDOMETRITIS BY DRAINAGE WITH IODOFORM GAUZE.

The disease in question might be divided into two forms: the purulent and the hemorrhagic. It is a prominent symptom in such diseased conditions as salpingitis, retention of the secundines, stenosis of the cervical canal, etc. The hemorrhagic form may simulate, or may be the prelude to malignant disease of the uterus. In such cases as indicate the method of treatment which is recommended the uterus is large, the mucous membrane is thick, and the os internum may be patulous. The principle of the treatment is that which applies to inflamed cavities in general drainage. The essential requirement is to keep the os internum widely open, but this is not best accomplished by either hard or soft tubes. Vulliet's method is to be preferred, and in accomplishing this the uterus is first cleansed and dilated, and then packed with small strips of iodoform gauze. This is removed in twenty-four hours, and new applications are made, the treatment being continued until the mucous membrane has assumed a healthy appearance, and its secretion is normal again. This method of treatment is also efficient as a substitute for curettement, as it renders that operation unnecessary.

DR. VAN DE WARKER then read a paper on

THE DANGERS OF GALVANO-PUNCTURE IN PELVIC TUMORS.

He based his conclusions on three cases:

Case I.—M., aged twenty-three years, married. A large tumor filling the pelvis. Bipolar puncture was made, followed by chronic febrile movement, and subsequent rupture of an abscess that had developed in an abdominal extension of the tumor.

Case II.—H., aged forty-three years, married. Large irregular pelvic tumor. Galvano-puncture with negative pole, large abdominal electrode. Rapid cystiform degeneration of the tumor. Great increase of pus and discomfort.

Case III.—H., aged thirty-seven years. Solid tumor filling the pelvis. Negative galvano-puncture, shot abdominal electrode. Cystiform degeneration of the tumor without pus, with fifty-seven days of low fever, and death from exhaustion.

The author offered the following conclusions: That galvano-puncture of pelvic tumors must follow careful discrimination of the character of the mass. That in certain forms cystiform degeneration is promoted to the discomfort of the patient, if not the jeopardy of life. Tumors that appear to be solid may not be so, but have alveolar spaces of various and irregular size with intervening trabeculæ of varying thickness. This condition has been regarded as either the degeneration of a pure fibroid, a fibroid cyst *de novo*, or a fibroid with disseminated lymph-spaces. Whatever may be the pathological

condition involved, the author believes that the group of tumors enumerated may prove hostile to electrolysis. We have in such instances the elements of cystiform degeneration, which is quickly intensified by the electrolytic current. The trabeculæ separating the lymph-spaces become thinned by the pressure of the accumulating fluid, and as a consequence the general mass becomes greatly enlarged, and, owing to the structure of the tumor, impossible to drain.

Second. The fluid so accumulating may become purulent, and, owing to the same peculiarity of structure, be impossible to evacuate, and thus render laparotomy imperative, no matter what its difficulties.

Third. Peculiar changes may be induced in the fluid from the passage of the current, either septicæmic or ptomainic, that result in a chronic form of blood poisoning with fatal exhaustion.

Fourth. In order to render galvano-puncture of pelvic tumors safe, special diagnostic precautions must be taken. To this end he recommends exploratory puncture with careful antisepsis. If cystiform changes are already taking place, the tumor is not a suitable one for galvano-puncture.

Fifth. The absence of pus in cases following this operation with low persistent febrile reaction (Case III.) points to the exemption of bacterial infection, and the development of some other form of poison, possibly a ptomaine due to the reducing action of electrolysis upon the fluids.

DR. F. H. MARTIN, of Chicago, thought that the dangerous elements of electro-puncture might be avoided. They were usually due to improper currents, improper selection of cases, improper location for applying the current, improper antiseptic precautions, and bungling operators. It would also be desirable to use a graduated rheostat and a milliampèremeter which registers not more than 100 milliampères to each 4 square centimetres of tissue exposure. Vaginal puncture should be used, instead of abdominal, if possible, or the electrode should be passed into the cervical canal. The electrodes should be insulated, clean, and aseptic. Great care should be used in every operation. In answer to a question, he replied that he had cured 5 cases of small fibroid tumor, 5 others were symptomatically cured, and 5 more were still under observation and treatment. In an experience of 70 cases with 3000 applications of electricity he had had no deaths, and but 1 pelvic abscess, which occurred in a woman who had previously had 3 of them.

DR. T. PARVIN, of Philadelphia, thought we should ever be on our guard in the use of this means of treatment. Danger always accompanied it, and death had occurred in some cases.

THURSDAY, SEPTEMBER 20TH.

MORNING SESSION.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. H. P. C. Wilson, of Baltimore.

Vice-Presidents.—Drs. W. T. Lusk, of New York, and E. W. Jenks, of Detroit.

Secretary.—Dr. Joseph Tabor Johnson, of Washington.

Treasurer.—Dr. M. D. Mann, of Buffalo.

Council.—Drs. J. E. Janvrin, of New York, W. H. Baker, of Boston, C. R. Drysdale, of Philadelphia, and Ely Van de Warker, of Syracuse.

The papers of Drs. Campbell, Sims (In Memoriam of Dr. J. Scott), Chadwick, J. Tabor Johnson, and Busey were read by title, also a paper by Dr. Alexander R. Simpson, of Edinburgh, Scotland, on *The Use of Chlorate of Potash in Obstetrics and Gynecology.*

DR. H. MARION SIMS read a paper on

THE IMPORTANCE OF THE MICROSCOPE IN THE TREATMENT OF STERILITY IN WOMEN.

Sterility, according to Sir James Simpson, occurred in every eighth marriage. The term implied that the ovum in the female was unfruitful, and was analogous to impotence with reference to the male. If a woman required treatment for sterility, the conditions pertaining to the sexual apparatus of both herself and her husband must be carefully ascertained. The examination would not be complete until the spermatozoa had been examined at various intervals after copulation, also the vaginal and cervical secretions, and the influence of each upon the other had been noted. It is not certainly known whether the ovum is fructified in the vagina, the uterus, or the tube. Analogy from certain of the lower animals would suggest that it took place in the vagina. Mechanical obstructions to impregnations in the form of displacements and diseases of the uterus and its appendages must usually be cured, or the sterility will continue. In the course of treatment for this condition, which may require months, the microscope would give valuable information, for it is not until the vaginal and uterine secretions are restored to normal conditions that the desired end could be attained.

DR. FORDYCE BARKER, of New York, referred to the question of age at which childbearing should terminate, and had never seen a woman who gave birth later than her fifty-fifth year. Late parturitions, as late as the fortieth year for the first time, had not proven, in his experience, either particularly difficult or dangerous.

DR. J. B. HUNTER, of New York, had found dilatation of the cervix with suitable local applications efficient in relieving sterility.

DR. H. P. C. WILSON, of Baltimore, had found the operation of posterior section useful in curing sterility. The cure of sterility was essentially the cure of a diseased mucous membrane.

DR. JOHNSTON, of Danville, Ky., stated that in the infantile uterus with an undeveloped mucous membrane there was absolute sterility, necessarily due to an abnormal condition of the sympathetic. Such individuals might menstruate irregularly. An examination of their secretions would not be sufficient to determine absolutely as to sterility.

DR. H. C. COE, of New York, thought that a slight constriction at the end of a Fallopian tube might suffice to produce absolute sterility, but would give rise to no symptoms.

DR. A. J. C. SKENE, of Brooklyn, inquired whether Dr. Johnston had found in the senile atrophic uterus the same histological condition which existed in the uterus of arrested development; and whether premature atrophy did not correspond anatomically with arrest of development. He had observed a changed appearance of the secretions from the uterus in arrest of

development—it looked like the sputa of pneumonia. He had always observed sterility in such cases.

Dr. Johnston replied that the condition of the uterus in infantile development was not the same as in senile atrophy. In the latter there is much fibrous tissue and a deficiency in the corpuscular elements; it resembled scar tissue. In the infantile uterus there was an abundance of the epithelial elements, and it was these facts that caused the difference in the secretions.

Dr. Robert Battey, of Rome, Ga., observed that the time for the climacteric, which was designated as the forty-fifth year by the text-books, was not the same for all localities. In the locality in which he lived it was nearer the fiftieth than the forty-fifth year, and he had not infrequently seen it occur as late as the fifty-fifth. In his own family there had been childbirth as late as the fifty-sixth year. Sterility was due in certain cases to mechanical difficulties, which could be overcome by suitable precautions on the part of the individuals concerned.

Dr. Collett, of South Carolina, remembered a case in which a woman gave birth to a child at the age of sixty-two years eight months.

Dr. Sims, in closing, expressed gratification that some of the gentlemen present had not yet abandoned the posterior section of the cervix for sterility. He believed that the operation was a useful one.

Dr. James B. Hunter, of New York, presented a paper on

PREGNANCY AS A COMPLICATION IN PELVIC DISEASES.

Though all writers did not share the reader's opinion, he believed that pregnancy had a marked influence upon existing pelvic disease. All diseases of the external genital organs were aggravated by it, whether they were of inflammatory or neoplastic origin. The same was true of diseases of the vagina; vaginal cysts ruptured during parturition, and after parturition the posterior vaginal wall always tended to prolapse. The pressure of the gravid womb might cause injury to the bladder. A vaginal enterocele might become strangulated, as the womb enlarged. Diseased conditions of the cervix became worse during the first three months of pregnancy, and subsequently became better, though indurated tissue in the angles of a fissured os uteri was perceptible during the entire period of gestation. Malignant disease of the cervix was wont to get rapidly worse under the influence of pregnancy, and frequent pregnancies seemed to predispose to the development of malignant disease. If pregnancy occurred coincidently with a displacement, the latter would be relieved in some cases, especially if the displacement were anterior, in others an abortion would result. Inflammation of the utero-sacral ligaments sometimes followed labor. Small fibroid tumors of the uterus might undergo fatty degeneration and absorption during pregnancy, those of the intra-mural variety might give rise to hemorrhages, and soft or cystic growths might enlarge rapidly. During this period also endometritis might be aggravated and lead to tubal disease, ovaries might prolapse, cysts rupture, and benign tumors become malignant. Though all these conditions might occur, one should never advise a woman not to marry on account of pelvic disease unless the latter were quite severe, or there was good reason for believing that it would be.

Dr. A. J. C. Skene, of Brooklyn, had often observed that pregnancy had a decided influence on nutrition, weak and delicate women often becoming more robust and menstruating more freely. Chronic inflammatory conditions were sometimes benefited and sometimes made worse, and the benefit obtained more than counterbalanced the risks which pregnancy entailed. Abortion need not occur in connection with displacements if the latter were properly managed, and retroflexions would usually be found cured when labor was over and involution had taken place. Retroversions were not usually cured by this process, especially if subinvolution existed.

Dr. Bache McE. Emmet, of New York, called attention to the fact there were certain forms of pelvic disease which were mild in their symptoms but might prove serious in their results. The quiet of pregnancy in itself was often a relief to a woman. In general it seemed to him that pelvic disease should be cured before pregnancy took place. In cases in which displacement was due to the weight of the uterus pregnancy would probably be beneficial.

Dr. Cameron, of Montreal, narrated a case in which the condition of a fibroid tumor of the uterus was decidedly modified by pregnancy, and another in which chronic inflammation of the pelvic tissue preceded pregnancy, the latter being followed by rupture of the uterus and death.

Dr. George J. Engelmann, of St. Louis, read a paper upon the

NEW METHODS OF ELECTRO-THERAPY IN THEIR BEARING UPON GYNECOLOGICAL SURGERY.

Electricity, it was observed, had had many enthusiastic advocates, but had often been indiscriminately applied and with improper apparatus. It had been a means of relief in many cases of fibroid tumor, but the results had not always been as good as could be desired. Only the galvanic current was referred to in the author's remarks, and only in those cases in which surgery would otherwise be resorted to. It was not to be considered a substitute for surgery, except when surgery was inappropriate or was refused. The advantages of electricity were its safety, the possibility of receiving it without being confined to bed, etc. It was useful in the treatment of neoplasms and inflammations, which admitted of a healthy retrograde metamorphosis, and it did not prevent a final resort to the knife if this was deemed advisable. Such conditions as indurated exudates, chronic stenosis, intramural fibroids, caruncle, chronic metritis, etc., were indications for its use. It should be used in nervous disorders before resorting to oöphorectomy. One could judge after a few applications whether it would be of any benefit. It would be better to progress slowly, avoiding electro-puncture if possible, and act with perfect safety. In tumors in which cystic degeneration had taken place, or for large collections of fluid in general, electricity was harmful, in tumors in which fatty degeneration was in progress it was beneficial.

Sub-serous tumors with long pedicles were less affected by the current than those which were closely adherent to the uterus. The reader had had no serious nor fatal results from his use of electricity; he never used abdominal puncture for the treatment of fibroids, but vaginal puncture if the tumor were penetrated at all. Care

should be used in the selection of cases which were to be treated, and those should never be treated which were beginning to disintegrate.

DR. H. P. C. WILSON, of Baltimore, thought that cases for treatment by electricity should be selected as carefully as for laparotomy. Keith and Apostoli had stated that if a patient were to be benefited at all it would be in the course of thirty sittings. Apostoli did not puncture a tumor if he could pass an electrode into the uterine canal. Accidents could happen with this as with any other means of treatment if it were improperly used.

DR. GRAILY HEWITT, of London, stated that he was still a student upon this subject, and he believed that electricity was destined to relieve much suffering. The prevailing tendency to rush into surgical operations should be restrained and safer methods like electricity employed.

DR. W. H. PARISH, of Philadelphia, thought that the best results which he had seen from the use of electricity had been in the treatment of pelvic exudates. No suppuration followed such treatment. He would like to know the extent to which electricity was useful in the treatment of pelvic abscess and whether it was of more advantage when the pus was in the cellular tissue, or when it was in the tubes.

DR. ENGELMANN, in closing, observed that Keith had said that a surgeon was almost criminal who cut a fibroid before he had tried electricity upon it. Electrical treatment heretofore had been of too crude a character, and without instruments of precision. In answer to the question concerning the value of electricity in the treatment of pelvic abscess, he would say, that if the quantity of pus were small it would be useful, and would favor absorption. If the quantity of pus were large, it would do no good, whether the pus were located in the tubes or in the cellular tissue.

AFTERNOON SESSION.

DR. MATTHEW D. MANN, of Buffalo, presented a specimen of a large and degenerated ovary, which contained a small, but well-developed placenta. This was an illustration that

OVARIAN PREGNANCY,

which had been declared impossible by some writers, did take place.

DR. JOSEPH E. JANVRIN, of New York, read a paper on

THE TREATMENT OF EXTRA-UTERINE PREGNANCY.

He took the same stand that he had already taken on several occasions during the past two or three years, that the existence of an extrauterine pregnancy is in itself an indication for laparotomy. The author's case in which fatal hemorrhage occurred, though electricity had been several times administered by competent hands, was cited as proof that electricity was not devoid of danger, and that it was not absolutely certain to stop development. Notwithstanding the statements of some high authorities, the diagnosis of ectopic gestation in the early months could frequently be made, and the prominent symptoms were given which usually attended that condition. If the condition were one of danger, it seemed rational to him that laparotomy should be performed and the sac extirpated, the same as in any other serious tubal disease, or, in fact, any condition for which opening of the abdomen was now deemed perfectly justifiable. While he believed that the electricity would in most cases do no harm, it was not so reliable nor so radical a measure as laparotomy, and he was, therefore, in favor of that procedure as soon as possible after the diagnosis was made.

DR. H. T. HANKS, of New York, read a paper on

THE EARLY DIAGNOSIS OF TUBAL PREGNANCY AND ITS TREATMENT BY ELECTRICITY,

with a report of two successful cases. It was thought that no general law could be laid down concerning the treatment of tubal pregnancy during the early months. Some cases could be best treated by electricity, others by laparotomy, especially if there were any suspicions that rupture had occurred. Two cases of undoubted tubal pregnancy were narrated, which were treated with the galvanic current by the reader. Both resulted favorably, and the tumor in both cases rapidly grew smaller. This method of treatment was the one which was favored by most American gynecologists, if the diagnosis were made prior to the fourth month of pregnancy. Of twenty cases which had been reported during the past two years as treated by electricity, only two had been fatal, and it was not clear that electricity had been the cause of death in those cases. For those who were inexperienced in laparotomy it was much more prudent to use electricity, which required comparatively little skill, than to cut; besides, should electricity fail, laparotomy could still be resorted to. The diagnosis of tubal pregnancy must always be a matter of more or less difficulty; the differentiation between this and other small tumors of the pelvis was seldom easy. In cases in which it was clear that the fœtus had died, one must be governed by circumstances in electing to do laparotomy, or to do nothing. Should a pregnancy pass the fifth month without mishap, and the mother express great desire for a living child, one must consider the propriety of allowing the pregnancy to continue until the child is viable. In general, the reader thought the following rules upon this subject could be followed:

1. If the diagnosis is made during the first four months, electricity should be used.
2. If the diagnosis is made after the fourth month, laparotomy is indicated.
3. Should serious symptoms arise at any period, immediate laparotomy is indicated.
4. If the diagnosis is not made until the fifth month, and the symptoms are not severe, it is well to wait until severe symptoms arise.
5. If the pregnancy has extended beyond the ninth month, and the fœtus is dead, laparotomy should be performed for its removal.

DR. HARVEY, of Calcutta, stated that laparotomy was not yet in favor in India, for any condition, though it was done occasionally. He did not believe that laparotomy should be resorted to in extra-uterine pregnancy by inexperienced operators, and yet one was sometimes called upon to do it without much preparation, as the urgency of the case would not admit of sufficient delay to send for an experienced operator.

DR. J. C. REEVE, of Dayton, Ohio, recalled the paper which he had read before the Society five years previously, in which he reported the fourth recorded case treated in this country by electricity. Much progress in connection with this subject had been made during that

period. One point to which he called attention in regard to diagnosis, was the vascular activity which was perceptible in the tubal cyst as it was projected against the vagina. It had impressed him as a most important diagnostic symptom. He admitted that he did not feel quite satisfied that the contents of ectopic gestation would always be readily disposed of after the use of electricity, but this was only a theoretical consideration; he had no facts to support. In general, he was in favor of electricity during the first three months of gestation, but he was not prepared to say that he thought its use unattended with danger, that danger being the rupture of the cyst.

DR. GORDON, of Portland, Me., thought the records of treatment of tubal pregnancy, as given by Dr. Hanks, were quite as favorable for laparotomy as for electricity. By the former method, there had been two deaths in sixteen cases; by the latter, two in fourteen cases. If one waited for hemorrhage, or other serious symptoms, before operating, the delay might be fatal, as had occurred in a case to which a colleague had recently been called—too late to render any servive. If ninety-five per cent. of cases of extra-uterine pregnancy could be diagnosticated, certainly many of them should be saved by laparotomy, without exposing them to the danger of death from sudden hemorrhage on the one hand, nor to septicæmia from absorption after the fœtus had been killed by electricity.

DR. JOHNSTON, of Danville, Ky., stated that ninety-nine out of every one hundred cases of tubal pregnancy had already ruptured one or more times before the attention of the physician was called to them. When pain and collapse occurred, it was evidence of rupture, and a clot or scar would be found upon the cyst, indicating the place at which this had occurred. The danger of rupture of the cyst from electricity is great. There is also great danger of subsequent sloughing and suppuration. Electricity was wrong in principle, and dangerous in practice for this condition. Even if lithopædion were formed, the patient was not safe, for sloughing might occur even in that condition. The safest method was the radical one—namely, the removal of the cyst and its contents.

DR. COLLETT, of South Carolina, narrated two cases which corroborated Dr. Johnston's statement concerning the record which each rupture made for itself upon the cyst.

DR. G. J. ENGLEMANN, of St. Louis, thought that in cases in which the diagnosis of extrauterine pregnancy was doubtful, electricity might be used, and no harm would result if there were no pregnancy. If pregnancy did exist, electricity might kill the fœtus in the early stages of its development. If this agent were to be used at all, there should be greater precision than has heretofore been employed, and directions should be carefully formulated for use in the treatment of extrauterine pregnancy.

DR. H. C. COE, of New York, remarked that the diagnosis of extra-uterine pregnancy was easy in typical cases, in others it was difficult.

DR. KINLOCH, of South Carolina, thought that the superiority of electricity, or of laparotomy, as a measure of treatment, would depend upon the circumstances connected with each case. From a surgical standpoint, a radical operation was always preferable, and with reasonable skill and favorable surroundings laparotomy would seem to him the better method of treatment.

DR. A. P. DUDLEY, of New York, thought that sufficient information was not at hand to assist one in making an early diagnosis in extra-uterine pregnancy, especially a differential diagnosis. The treatment was not difficult after a diagnosis had been made. In almost all cases there was little danger in an exploratory incision, and it would be very helpful in making a diagnosis.

DR. MANN objected to the criticism of Dr. Johnston, that the specimen which he had presented as a specimen of ovarian pregnancy was a dermoid cyst. His logic, that because dermoid cysts might contain almost anything, therefore placental tissue; and that, hence, this was a dermoid cyst, was lacking in convincing power. The speaker had seen several cases in which electricity had been used for the treatment of extra-uterine pregnancy, all of them had done well, and in none of them had there been the suppuration which Dr. Johnston feared. He had also seen a patient with lithopædion who had had no bad symptoms at any time.

DR. JANVRIN referred to the cases of Drs. Price and Hawley (two) as the only three recorded cases in which primary laparotomy had been performed for extrauterine pregnancy. Of course, laparotomy was recommended only for those who were competent to perform it, others might use electricity until serious symptoms should demand skilled assistance. The case which was narrated by Dr. Harvey of ruptured tubal pregnancy operated upon by Mr. Tait was incomplete, as it did not appear that he had seen anything but blood clots and a cyst; and a tubal pregnancy was not complete without a fœtus. In so far as the narration was concerned, it was only a hæmatocele. Dr. Johnston's statements harmonized with the speaker's belief, that the sharp pains of extra-uterine pregnancy were indicative of rupture.

DR. HANKS said that he did not exclude skilful or experienced laparotomists from operating at any period of extra-uterine pregnancy when a diagnosis had been made; but electricity could be used by the general practitioner when, perhaps, the services of a laparotomist were not available. No serious trouble had ever been reported in cases in which the fœtus had been destroyed before the third month by electricity, excepting in the case of Dr. Janvrin.

ADJOURNMENT.

THE PRESIDENT then made his parting address to the Society, introducing his successor, Dr. H. P. C. Wilson, of Baltimore, who assumed the chair, and adjourned the Society until its next meeting, in Boston, on the second Tuesday in September, 1889.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Twelfth Annual Meeting,
Held at Washington, September 18, 19, and 20, 1888.

WEDNESDAY, SEPTEMBER 19TH.

DR. J. E. GRAHAM, of Toronto, read a

REPORT OF FOUR CASES OF DERMATITIS HERPETIFORMIS.

Three of his cases were mild in character, exhibited the characteristics described by Duhring, and ended in recovery. The fourth was very severe in its manifestations, and ended fatally in spite of treatment; the case exhibited many of the lesions and symptoms of pemphigus.

DR. H. W. STELWAGON, of Philadelphia, reported

THREE CASES OF DERMATITIS HERPETIFORMIS, WITH NOTES.

Among about 5000 cases of skin diseases he had seen but three of dermatitis herpetiformis; all conformed to Duhring's description. *Case 1* did well under arsenic and salines. *Case 2* had suffered from scarlatina; the dermatitis herpetiformis which followed, was obstinate, recurring in severe exacerbations, and not amenable to treatment. Arsenious acid was pushed to one-eighth of a grain doses, three times daily, in this case, without benefit. This patient subsequently passed to the Skin and Cancer Hospital, New York. *Case 3*, a woman, exhibited a milder form of the disease, and was improved by arsenic.

Dr. Stelwagon endorsed Duhring's description of these cases, and confirmed his description of the affection by his own observation.

DR. HYDE, of Chicago, in discussing these papers, preferred to separate simple exfoliative lesions from graver disorders. He described the case of a male patient who presented an extremely aggravated disease, bearing some resemblance to dermatitis herpetiformis, but which he considered pemphigus. The patient had blebs, large denuded patches, and extensive denudation along the back. He was placed upon a splint with an iron frame and broad supporting surfaces of cloth, on which he was immersed in the constant water bath for long intervals; he was given tonics and arsenic freely, but a fatal result followed.

DR. L. DUNCAN BULKLEY, of New York, described a case of dermatitis herpetiformis which developed diffuse sarcoma; another case died from a cerebral lesion. He regarded such cases as pemphigus, not herpes.

DR. FOX, of New York, had Dr. Stelwagon's second case under his observation. The diagnosis is difficult, as the case presents features of pemphigus and herpes also. He is inclined to question the utility of large doses of arsenic in these cases.

DR. HEITZMANN, of New York, had described a case some twelve years previous, presenting the clinical features of dermatitis herpetiformis, which proved to be pemphigus. He has seen but one case of Duhring's dermatitis herpetiformis in his experience.

DRS. GRAHAM and STELWAGON, in closing the discussion, stated that they would include under dermatitis herpetiformis a class of cases not described under other names. They would not classify skin disease on the basis of etiology.

DR. A. VAN HARLINGEN, of Philadelphia, described a case of

FILARIA MEDINENSIS.

The patient was employed in handling invoices and goods imported from the tropics. The worm developed typically in the palm of the hand, and Dr. Van Harlingen endeavored to remove it by cutting down upon it. Failing in this, he followed Tilbury Fox's advice, and gave assafœtida in free doses, with a prompt and successful result. The worm died, and shrivelled *in situ*. This parasite is frequently found in the soles of the feet of the inhabitants of the tropics, but is rare in temperate climates.

DR. HYDE, of Chicago, followed with a paper on

VEGETATIVE LESIONS CAUSED BY IODIDES,

which will appear in full in an early number of THE MEDICAL NEWS.

The discussion of this paper elicited the clinical facts that potassium permanganate and bromide may cause lesions similar to those caused by iodides. A possible connection exists between diseases of the heart and kidneys and such eruptions.

THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

Fifth Annual Meeting
Held at Washington, September 18, 19, and 20, 1888.

(Specially reported for THE MEDICAL NEWS.)

TUESDAY AFTERNOON, SEPTEMBER 18TH.

THE PRESIDENT, DR. A. L. LOOMIS, of New York, called the Association to order at 2.30 P.M., and delivered

THE PRESIDENT'S ADDRESS.

(See page 345.)

DR. S. A. FISK, of Denver, then read a paper on

THE CLIMATE OF COLORADO FOR PULMONARY DISEASE.

The drainage of Colorado, he said, is subterranean, which insures a dry climate; there are no bodies of water near to furnish moisture. The elevation and physical features of the country vary greatly. The soil is sandy, and the atmosphere of considerable rarity; the elevation of Colorado increases the circulation of the blood and the respiration, the cutaneous circulation being very active. The climate is especially dry, the hours of sunshine being very numerous. In the winter of 1884 and 1885 there were but 11 days out of 242 in which the sun did not shine at some time during the day. Denver has twice as much sunshine as European resorts, the sun rising at 7.30 during January. The climate is hot in summer, in the towns; in the mountains and parks it is comfortably cool. Great variations of temperature occasionally occur, as much as 80° having been observed. The winter climate is cold, but not sufficiently so to debilitate any but the very weak. Wind storms are infrequent; dust is very easily raised. The average precipitation is very little; fog is almost unknown.

He did not consider altitude a protection against germs; the crowding together of human beings gives rise to germs in any altitude. Putrefaction is, however, very slight. Colorado is fit for a permanent resort; it is a prosperous, and growing State, and patients should be encouraged to remain there.

DR. SOLLY, of Colorado Springs, then read a paper describing the

PATIENTS SUITED FOR TREATMENT IN COLORADO.

The most frequent and marked effect of the climate is improved circulation, especially cutaneous; the complexion becomes reddened, and acute skin diseases are improved. With some patients the hair often falls, but returns when the circulation has become adjusted. Cardiac contractions are stronger, and dilatation may occur in weak hearts; as the patient becomes acclimated compensation is established. Cases of dilated heart are best treated elsewhere; such patients cannot exercise at an altitude. Fatty heart and valvular lesions are improved by the climate. Functional congestions generally disappear; anæmia and chlorosis are improved. Chronic pulmonary diseases do well, but croupous pneumonia is

violent, and attended by bloody expectoration; pneumonia occurs with greater facility than elsewhere. Pleurisy is ordinarily without effusion. Acute catarrhs are frequent. The phlegmatic and chlorotic do well. The climate is especially efficacious in arresting early tuberculosis. Phthisis and pleurisy developing after pneumonia, improve. When a tendency to acute catarrhs exists, the climate is contraindicated; when a patient has lung avities, but can react to the stimulus of the climate, great benefit often follows. Chronic nasal catarrh is improved. Renal disease is made worse. Colorado is a gymnasium, and intelligent activity and coöperation on the part of the patient are needed.

DR. R. G. CURTIN, of Philadelphia, then read a paper entitled

IS CLIMATE AN ETIOLOGICAL FACTOR IN GRAVES'S DISEASE?

He reported forty cases, occurring in fifteen families, most of these patients being natives of Alsace or Lorraine, and having lived in a moderately high altitude. His investigations led him to believe that intermarriage is the primary cause of this condition, favored by the disturbance of the nervous system by high altitude. Any exciting disturbance of the nervous system is known to favor the disease. He would not send such patients to high altitudes. He had seen cases go on to sudden death from heart failure.

DR. P. H. KRETZSCHMAR, of Brooklyn, then read a paper on

HEALTH RESORTS VS. INSTITUTIONS FOR THE TREATMENT OF PULMONARY CONSUMPTION.

He credited Bremer, of Germany, with the first institution for the treatment of phthisis, and considered the natural advantages for such treatment afforded by the springs of America neglected by the American profession. As there is no specific treatment for phthisis, the comprehensive treatment required can be best given in institutions. At health resorts the habits of patients are not sufficiently controlled; they are led, by association with well persons, to overtax themselves in pleasures which are innocent for the healthy. This is well shown by the mortality from phthisis at Nice, one in ten, while at the European institutions for the phthisical the rate is one in fifty. The danger of contagion from the phthisical at resorts is less than their danger. Relapses are usually caused by congestions resulting from indiscretions.

Detweiler and Trudeau have emphasized the dangers of the reckless use of mountain air. It is most important that the minutiæ of life and treatment be personally regulated by the physician. Thus the cold douche, a most valuable agent, should be given under the physician's order only.

Regarding the value of alcohol in these cases, Bremer uses it sparingly, giving brandy and milk for night sweats. Detweiler uses alcohol freely, to the exclusion of antipyretics. Bremer takes the patient's temperature every two hours during the day; he employs rest in the open air for cases with fever. In marked fever an ice-bag over the heart is useful.

Dr. Kretzschmar prefers to give antifebrin grs. iij four times daily. The patients are not influenced badly by their surroundings while at sanitariums.

DR. LOOMIS agreed with the author that resorts are not liable for these cases. He has obtained his best results in the Adirondacks, because of the care given to the patients by physicians resident there. Dr. Trudeau had between 75 and 100 patients about him last winter; he has about 20 who have built cottages to remain under his care. This plan of treatment Dr. Loomis endorsed.

DR. SOLLY thought contagion and mental depression important objections to sanitariums; he thought well of cottages. Eastern physicians sometimes send patients to Colorado, telling them to abandon all medical treatment and rely on climate—a grave error. Patients need a physician's advice regarding their use of a climate as a medicinal agent.

DR. LEVICK, of Philadelphia, preferred cottages to a sanitarium, on account of the mental depression caused by the latter; he cited the great Ventnor Hospital of England as an example.

DR. KRETZSCHMAR, in conclusion, quoted the statistics of Bremer, showing 50 per cent. recoveries from the first stages of phthisis during the past year in his sanitarium. He considered contagion doubtful. Among those living in a town containing a sanitarium, at which 14,000 patients had been treated in 31 years, but 5 died of phthisis. There had been no authentic case of contagion at Davos.

WEDNESDAY, SEPTEMBER 19TH.

DR. E. L. TRUDEAU, of Saranac Lake, N. Y., reported

AN ENVIRONMENT EXPERIMENT REPEATED

which he had made upon animals inoculated with tubercle bacilli. His experiments demonstrated that the virulence of such inoculation depends largely upon the number of bacilli introduced, and the anatomical location of their introduction. Specimens exhibiting the conservative work of nature in encysting tuberculous foci were shown.

DR. COUNCILMAN, of Baltimore, remarked that bacilli may be aspirated into the lung from the bronchi; they may follow the lymphatics, or enter the bloodvessels directly, as in miliary tuberculosis. The resistance of the tissues to the invasion is shown by the formation of connective tissue around the focus; caseation occurs when this tissue breaks down; this tissue is well illustrated in the "pearly disease" of animals, bovine tuberculosis. The degrees of difference in the virulence of the tuberculous virus are not accurately known, nor the reasons for such differences.

THE REPORT OF THE COMMITTEE ON MINERAL SPRINGS

was then read by the Chairman, DR. C. C. RICE, of New York.

The committee had found about 800 springs, whose nomenclature, however, was in a very disordered state. The classification of springs now attempted is on the basis of therapeutic value, the springs most useful being those but slightly impregnated with salines. Accurate chemical analyses are needed; but one-tenth of the whole number have been analyzed, and the government is ready to analyze waters sent to its laboratory. America lacks thermal springs, and investigation is needed to ascertain whether waters artificially heated are valuable in cases treated at European thermal springs. The committee proposed a plan for the selection of reliable

physicians residing at various springs, who should report their results in treatment by the waters of the springs in a systematic manner to the committee.

It was moved and seconded that the committee be continued, with power to act.

A discussion on the

THERAPEUTIC VALUE OF MINERAL WATERS

was then opened.

DR. WILLIAM PEPPER, of Philadelphia, spoke of their employment in *Gastro-hepatic Diseases*. His previous investigations had led him to believe that America is the richest of all countries in mineral springs; we lack, however, authentic analyses, and his custom in practice is to select that American water most similar to a European water of known ingredients. Simple water he regarded as valuable for its effect upon the secretion of bile, and the formation of urea, with the promotion of tissue metamorphosis. The use of mineral waters is indicated in gastric atony, catarrh, dilatation, and ulcer; in hepatic catarrh, cirrhosis, congestion, gall-stones, and nervous stasis. In stomach disorders the water should be taken fasting; in hepatic disease after eating; waters should contain but a small proportion of salines. Cold water stimulates, increasing secretion and muscular action. Hot water cleanses mucous membrane, increasing secretion.

Dr. Pepper uses Carlsbad water most frequently in his practice, in varying dilution; he also employs the waters of Vichy, Wiesbaden, Aix-la-Chapelle, Schwalbach, and Apollinaris water. For the development of American springs we need analyses by the government. The diet and regimen of the patient are also important. Saline waters cannot be safely ordered without a careful adjustment of the patient's food, as when carelessly given the excretory organs may be injured. He had recently used whey as a substitute for mineral waters with good results. Dr. Marshall, of the University of Pennsylvania, had recently analyzed samples of whey for him, and found that whey contains caseine, lactic acid, milk sugar, and water, with a small amount of salines; a pint of whey contains a considerable quantity of salines. He described the case of a man aged fifty-eight, whose tissues had become extensively disorganized through excesses, who had been greatly improved by abandoning alcohol and the free use of whey with mineral waters. The slightest indiscretion in diet caused alarming symptoms. In many of these cases silver nitrate or bichloride of mercury can be given with advantage.

DR. A. H. SMITH, of New York, then read a paper on

MINERAL WATERS IN URINARY AND ARTHRITIC DISEASES.

He believes that water is never injurious to the kidney in nephritis, but pure water without salines should be used. So-called "hard" waters undoubtedly favor the formation of calculus. The great increase in nephritis of various forms during late years has resulted from the very common use of saline waters now prevalent. Statistics show that nephritis causes more deaths in New York than in London; and there is reason to believe that it is not the consumption of alcohol, as often asserted, which produces this result. In gouty contracted kidney mineral waters are especially valuable, provided they contain but little salines. Water containing a trace of iron is valuable in these cases: such are the waters of springs in Wisconsin and Virginia. In joint diseases, waters containing alkaline carbonates are valuable, their bases combining with animal acids in the organism. Vichy is valuable in this way. The utility of thermal springs, as the Hot Springs, depends as much upon the general treatment and regimen enforced as upon the water.

DR. W. C. VAN BIBBER, of Baltimore closed the discussion upon mineral waters with a paper upon their use in *Malarial Diseases*. He described the pathological changes produced by the disease, and spoke of the value of waters increasing excretion, and thereby promoting assimilation and the effect of anti-malarial medication.

CORRESPONDENCE.

ABSCESSES IN THE PELVIC AREOLAR TISSUE.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of September 22d, in the generally accurate report of the proceedings of the American Gynecological Society, I am reported as stating that "abscesses in the pelvic areolar tissue . . . should *not* be operated upon early." In this your reporter has erred. I insisted that they should be operated upon early, for delay in operating in such cases is extremely hazardous.

I advocated, also, a method of operating in such cases, not generally resorted to, one that I have in a few instances resorted to, and that is of special value *early* in areolar pelvic abscess and where an opening *per vaginam* cannot be safely effected. In such cases I make, first, an exploratory incision in the median line to determine whether or not pyosalpinx or ovarian abscess coexists. If I find that neither of these conditions is present, I then, with two fingers within the peritoneal cavity acting as guides, make a second incision, usually above the median portion of Poupart's ligament. I carry this incision, it may be, deep into the pelvis, keeping external to the peritoneum, until the small pus cavity is reached, I empty this of its contents, wash it out with a corrosive sublimate solution and introduce a drainage tube—usually a large rubber one. The peritoneal cavity is carefully protected during the operation. The median incision is closed and covered with an adhesive impermeable dressing.

This method of procedure I reported in the Society as one well adapted to limited purulent collections in the areolar tissue. The cases I have thus operated on have made speedy recoveries.

WILLIAM H. PARISH.

PHILADELPHIA, Sept. 22, 1888.

OPERATION FOR INGROWING TOE-NAIL WITH HYPODERMATIC INJECTION OF COCAINE.

To the Editor of THE MEDICAL NEWS,

SIR: I have just read in your issue of August 25th, page 208, Dr. F. Johnson's experience with cocaine in operating for ingrowing toe-nail. As he makes no mention of confining the cocaine anæsthesia to the toe to be operated upon by a ligature, I infer that he did not take this precaution, and hence the alarming symptoms.

In my surgical clinic at the Boston Dispensary I have operated many times upon ingrowing toe-nail under cocaine anæsthesia, but have always applied a rubber tube ligature a minute or two after injecting the cocaine. I have never met with the slightest unpleasant effect, either general or local. My method is as follows: I inject deep into the tissues a two or four per cent. solution of cocaine in three places, at each side and in the centre, then, in a minute or two, apply tightly at the root of the toe my rubber ligature. After waiting until complete local anæsthesia is obtained, I take off a thick slice of the toe on the affected side—under antiseptic precautions. This is known with us as the Cotting method.[1] The slice must be thick enough to expose the edge of the nail. With this the Cotting method stops, but in addition I remove about half of the nail on the affected side, evulsing it, and thoroughly destroy the matrix. Before removing the ligature—for there is much troublesome hemorrhage—I apply my dressing, which consists first of powdered iodoform or salve, followed by many layers of bichloride gauze, tightly bound on. Much care and time must be used in applying this dressing. After removing the ligature I have the patient wait a half hour to see if the bleeding soaks through the dressing. I then send the patient home, and do not touch the dressing—unless for cause—for a week. At the end of that time, I find the wound nicely granulating.

Under this method I have never to my knowledge had an unsuccessful case, or any accident with the cocaine. It is always in cases in which the cocaine cannot, or is not, locally confined, that the alarming systemic symptoms occur, although even in these cases it has never happened to me to meet with any accident, although I have constantly used this anæsthetic in minor operations. Still, I always have a feeling that such symptoms may occur.

EDWARD O. OTIS, M.D.,
Surgeon to the Boston Dispensary.

93 MT. VERNON ST., BOSTON,
September 14, 1888.

NEWS ITEMS.

A Matter of Diagnosis—A suit of great interest to medical men has been brought in the courts of Rhode Island by a Mr. Larkin, proprietor of one of the hotels at Watch Hill, R. I., against Dr. Samuel O. Vanderpoel, of New York, for alleged damage to the plaintiff's business by reason of a diagnosis of scarlet fever made by the defendant in the case of a child staying at his hotel. Dr. Vanderpoel was called to see the child, diagnosticated a mild case of scarlet fever, and advised that the child be removed to a cottage belonging to the proprietor, so as to be isolated from the guests. This recommendation was not complied with, and the child's nurse continued to go to the servants' dining-room. The diagnosis becoming known, a general exodus of guests took place, and the house, which contained a great many familes with children, was soon nearly deserted. The damage in the suit is laid at $12,000, though it is difficult to see on what grounds the case is to be urged. Dr. Vanderpoel's diagnosis, it is said, was confirmed by two other physicians, though it was disputed by one practitioner who saw the case in the interest of the landlord. The manner in which the notice was served upon the defendant was particularly aggravating, the sheriff declining, it is said, the bail that was offered, and expressing his intention to lock up the doctor.

The exceedingly delicate position in which a physician is placed who is called to a case of infectious disease in a summer hotel is well illustrated in this case, but if a man is to be subject to a suit every time he makes such a diagnosis, it is time the profession knew it and protected itself. It is reported that Dr. Vanderpoel will bring a counter-suit against the hotel man for damages.

[1] Boston Medical and Surgical Journal, April 7, 1887, p. 324.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 18 TO SEPTEMBER 24, 1888.

By direction of the Acting Secretary of War, the leave of absence granted ALFRED A. WOODHULL, *Major and Surgeon*, in S. O. 148, June 27, 1888, from this office, is extended fifteen days —Par. 14, *S. O. 218, A. G. O.*, September 19, 1888.

By direction of the Acting Secretary of War, ROBERT J. GIBSON, *Captain and Assistant Surgeon*, is relieved from duty at Alcatraz Island, California, and will report in person to the President of the Army Medical Examining Board, New York City, on October 16, 1888, for examination for promotion; on completion of his examination, Captain Gibson will proceed to Fort Trumbull, Connecticut, and report for duty to the commanding officer of that post, reporting by letter to the Commanding General, Division of the Atlantic.—Par. 13, *S. O. 217, A. G. O.*, September 18, 1888.

By direction of the Acting Secretary of War, EDWARD R. MORRIS, *First Lieutenant and Assistant Surgeon*, is relieved from duty at Fort Thomas, Arizona, and will report in person to the commanding officer, Fort Shaw, Montana, for duty at that post, reporting by letter to the Commanding General, Department of Dakota —Par. 14, *S. O. 217, A. G. O.*, September 18, 1888.

By direction of the President, the Army Retiring Board at San Francisco, California, convened by War Department Order dated July 20, 1886, published in S. O. 168, July 22, 1886, from Headquarters of the Army, is dissolved.—Par. 1, *S. O. 217, A. G. O.*, September 18, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 22, 1888.

CABELL, A. G., *Passed Assistant Surgeon.*—Ordered to the Naval Hospital, Chelsea, Mass.

BAKER, J. W., *Passed Assistant Surgeon.*—Detached from the Naval Hospital, Chelsea, Mass., and ordered to the "Palos."

LEACH, PHILIP, *Passed Assistant Surgeon.*—Detached from the "Palos," and granted six months' leave abroad.

SIMONS, M. A., *Surgeon.*—Detached from the Naval Academy, and wait orders.

HARMON, G. E. H., *Surgeon* —Ordered in charge of Naval Academy.

PICKRELL, GEORGE MCC., *Assistant Surgeon.*—Detached from the "New Hampshire," and ordered to the "Ossipee."

ARNOLD, W. F., *Assistant Surgeon.*—Ordered to the "New Hampshire."

HENRY, C. P., *Assistant Surgeon.*—Detached from the "Ossipee," and granted sick leave.

CORDEIRO, F. J. B., *Assistant Surgeon.*—Promoted to Passed Assistant Surgeon.

SPEAR, J. C., *Medical Inspector.*—Placed on the retired list, September 14th.

RHOADES, A. C., *Medical Inspector.*—Placed on the retired list, September 14th.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, OCTOBER 6, 1888. NO. 14.

ORIGINAL ARTICLES.

CONDITIONS WHICH TEND TO RENDER THE ATMOSPHERE OF A LOCALITY ASEPTIC.[1]

BY J. T. WHITTAKER, M.D.,
PROFESSOR OF THEORY AND PRACTICE OF MEDICINE IN THE MEDICAL COLLEGE OF OHIO.

CONDITIONS which tend to free, or keep free, the air from pathogenic microörganisms, is the construction I put upon this subject that it may have medical, as well as surgical consideration.

In this consideration the subject is brought into proper limit by study of the question, What pathogenic microörganisms do or may exist in the air, first outside, second inside the walls of houses? The older writers derived the cause of most diseases, certainly of most infectious diseases, from the air. The vague term "telluric influence" constituted a kind of refuge for everything inexplicable, including syphilis. With the discovery of the infusoria by Leeuwenhoek, 1675, came the birth of the germ theory, to give rise to the wildest conceptions regarding the infection of the air. The air was supposed to swarm with germs of animal nature, something in the form of moths, armed often with beaks and claws, individual varieties of which produced individual diseases. It was seriously proposed in the seventeenth century to drive them away during an epidemic by the noise of trumpets and the thunder of cannon, just as the people of our day, as much as in the days of the Athenian plague, attempt to frighten them with cannon or burn them with bonfires in public squares. Less fantastic, though nearly as extravagant, was the view that the myriad motes of the sunbeam were germs or carriers of germs of disease.

The natural reaction which dissipated for a time all belief in a *contagium vivum* did not detract from the air as the chief element in the production of infectious diseases. For telluric influences and swarms of animals were substituted electric currents, ozone proportions, volatile emanations, vapors, gases, etc., views which are not without advocates in very recent times. Thus, Surgeon-General Hunter of the British Army is inclined to ascribe the cholera of India, in 1884, to the state of the air. "When the epidemic was at its height," he says in his second report, "on the 23d of July, a very peculiar condition of the atmosphere was observed; a yellowness of the air, somewhat of the nature of a fog; and it was quite calm. The sparrows, it was observed, had deserted the place and did not return until July 26th."

With the reintroduction of the germ theory upon the basis of a fact, to wit, the discovery of the spirilla of recurrent fever by Obermayer, 1873, and the general adoption of it which gradually followed the discovery of the tubercle bacillus by Koch, in 1882, the *rôle* of the air as a reservoir of microorganisms became more prominent than ever. Inasmuch as this disease could be imparted to animals by inhalation experiments; inasmuch as the germs of the disease from their principal localization are known to be inhaled; and inasmuch as the lungs constitute a vast absorbing surface exposed to the air at all times: it was not unnatural to believe that all the infections could be contained in and received from the air. The majority of teachers, writers, and clinicians believed and maintained that cholera, typhoid fever, and dysentery, for instance, entered the body through the avenue of the lungs.

So long as microscopy and chemistry constituted the sole means of examining the matter deposited from the air there could be obtained no precise knowledge, which became possible only with isolation of its particles and cultivation of them in various soils. These investigations, which are necessarily of recent date, have nevertheless already disclosed the fact that the air is, as a rule, when compared with the water, and the soil singularly free from pathogenic microörganisms. In fact, the only pathogenic microörganisms as yet definitely discovered and established by inoculation experiments are the ubiquitous[1] staphylococcus pyogenes aureus and the streptococcus of erysipelas.

We are forced, therefore, to reach by elimination the diseases whose causes may exist in the outside air. We may exclude thus, first most, if not all, the eminently contagious diseases whose infectious principle is given off from the body directly or indirectly. Thus, it is not probable that smallpox, scarlet fever, measles, typhus fever, relapsing fever, aside from accidental direct contact with cases, are ever contracted in the open air. Cholera, typhoid fever, and dysentery, since the demonstration of their cause in drinking water, positively in the case of cholera and typhoid fever, presumptively in the case of dysentery, have lost all connection with the

[1] Read before the American Climatological Association, September 20, 1888.

atmosphere outside or inside. Should the meningococcus prove to be the cause of cerebro-spinal meningitis this disease will take its place with croupous pneumonia as a house disease, which is certainly the case with tuberculosis—no case of which was ever contracted in the open air. The tendency of our day is to regard acute articular rheumatism as a mycosis whose cause lies inside and not outside the walls of houses. Erysipelas, if not directly inoculated, falls upon wounded surfaces from bedding, clothing, house furniture, or walls from which its microörganisms have been directly scraped.

Diphtheria and croup stand on debatable ground, with the probabilities, on account of demonstrated infectiousness, strongly in favor of inside transmission. Yet it is not impossible that the diphtheria of fowls may be a source of infection of man. Since Stöhr has shown that the epithelium of normal tonsils presents openings, stigmata, or holes through which white blood-corpuscles pass constantly into the mouth the way is opened directly to the blood for the passage of outside germs.

The non-contagious infections, the group characterized as miasmatic diseases, the number of which grows gradually less as the causes of the infections become accurately determined, remain as the sole affections whose cause exists in the outside air in quantity sufficient to produce infection. Pre-eminent among these is the variety called bad air, malaria; and with the malarias may be associated influenza, hay fever, possibly pertussis and yellow fever, the last of which differs markedly from the rest in the fact that it must be introduced by a case of the disease. Hence it is not improbable that the determination of the exact cause of this disease will remove it from the miasms altogether. The infective principle lives, apparently, in the discharges, and is largely localized in the liver, but seems to require some transformation in bilge-water, bedding, or other soil, before it becomes actively infectious.

The statement is here superfluous, that the miasmatic diseases proper originate not in the air but in the soil, whence the cause is lifted and disseminated by currents of air.

Thus it is evident that the cause of but few, and these by no means the fatal diseases, actually exists in the outside air.

Direct examination of the air by even the first means employed, revealed the fact that the quantity or number of microörganisms in it varied greatly in different places. The air of the country is more free than that of the city in the proportion, according to Miquel, of 1092 to 9750 to the cubic metre, at Montsouris and Paris; or, according to Freudenreich, of 300 to 2400, about and in the city of Berne; the air of the city parks, according to Frankland, containing more microörganisms than that of the country about London. Microörganisms of all kinds are heavier than air, and, consequently, sink in a tranquil atmosphere, to abound most on the surface of the earth. Thus, Miquel counted in the air at the top of the Pantheon but 364 germs to the metre, and Tyndall and Pasteur found the air "optically pure"—that is, entirely free from microorganisms, at the top of the Alps. As a sample of the microörganisms of the air may be mentioned the results of an examination by the two Franklands, who found ten varieties of micrococci, twelve bacilli (among which was the hay bacillus and the bacillus prodigiosus), two ferments (one of which was the rosa-hefe), one mould, and yellow and orange sarcinæ. Hesse demonstrated the rapid gravitation of all microörganisms in air which was comparatively still, and observed the much more rapid gravitation of bacteria than of moulds and ferments. Petri shows thus that entirely different results are obtained in aspiration studies, which take the air above or in circulation, and plate studies, which collect it from the surface or at rest. In aspiration observations moulds and ferments abound, while in plates bacteria predominate. Hence, to obtain reliable results, both methods should be employed at once.

Marked diminution in the number of all microorganisms follows a rainfall which washes them down, or a tornado which sweeps them away, or a fall of snow which prevents their dissipation by the wind.

Absolute outside air is met at the surface of the earth only upon the high seas, and repeated observations, most accurately by Fischer on the steamer "Moltke," have shown that at a distance of 70 to 120 sea miles from shore, except in the presence of land winds, the air is nearly or absolutely pure. Thus, all microörganisms reaching absolute outside air are diluted to the infinite and lost.

Very different, in this regard, is the constitution of the air within the walls of houses. The number of microörganisms in the outside air sinks to insignificance in comparison with the air inside the habitations of man. Thus, in Miquel's own house there were in summer, in each cubic metre, 49,800, five times as many as in the street outside, and in winter, owing to diminished ventilation, 84,500, nearly ten times as many as in the street. Dennis found that not a single germ developed upon sterilized glycerine slides exposed off the bow of a ship; but five or six in ten days upon two slides exposed on the promenade deck under free ventilation of air, whereas upon one in the stateroom exposed for but fifteen minutes, there formed in eighteen hours five hundred points, or beginning colonies.

Microörganisms multiply in houses in proportion directly to the number of inhabitants, and inversely to the number of rooms or amount of inhabited space. Cornelly, Haldane, and Anderson published

tables showing the impurity of houses of one room compared with those of four or more. Disease stood in exact relation with the number of inhabitants. The mortality of tuberculosis is greater in houses of one and two than in those of three or more rooms. Neumann observed of the air at the hospital Moabit, examined by Hesse's method, that germs of all kinds were most numerous in the morning after sweeping and after the patients got out of bed—80 to 140 in 10 litres of air, when they gradually reduced in number until evening, at which time they numbered but 10 in 60 litres of air, the average number present in empty rooms. The gradual reduction of microörganisms in the course of the day in a still but peopled room is due partly to the subsidence of the heavier germs, but chiefly to the gradual incorporation of them into the lungs. Numerous observations by Tyndall, Grancher, Charin and Karth, have shown that the expired air is free from all microorganisms, which, introduced into the lungs by the act of inspiration, are retained upon the moist surfaces of the bronchi and air-cells. Thus, the introduction of a number of animals or men into a closed room, while poisoning the air with irrespirable gases, gradually frees it from microörganisms. This fact does not invalidate the observation just made and long ago established by Pasteur and many others that the number of microörganisms in a room corresponds with the number of inhabitants. : for movements of the inhabitants detach or set free the numerous microörganisms deposited upon the clothing, floor, and walls. One circumstance, therefore, which would tend to render the atmosphere of a closed apartment aseptic would be the introduction into it of a number of human beings, an experiment which we see made every day, but which has its results ruined by the subsequent multiplication of microorganisms in and from infected individuals.

No attempt has been made hitherto in this study of the infection of the air to separate the microorganisms of disease from those essential to life, the pathogenic from what we might call the genetic germs. In a general way, it is known to be true that an atmosphere infected with a great number of microörganisms is, or is liable to be contaminated by the largest number of the microörganisms of disease. But direct disclosure of pathogenic microörganisms, even in the air or on the walls of closed compartments, is very difficult, and has been accomplished positively only in the case of erysipelas and septicæmia. Kümmel claims to have found all kinds of microörganisms on the walls of his operating room. Emmerich found on the walls of the pathological institute of Munich the microörganisms of erysipelas, a discovery which was verified by cultivation and inoculation. Eiselsberg found deposited on slides placed on and under the beds of Billroth's wards the staphylococcus aureus, and later, in the same way, Fehleisen's streptococcus. Uffelmann found Friedländer's pneumonia bacillus in the air of a cellar under the hygienic institute at Rostock, and Cornel without doubt inoculated tuberculosis with sponge scrapings from headboards of beds occupied by phthisical patients.

Concerning the presence of microörganisms in general the wall studies of Esmarch, published in the *Zeitschrift für Hygiene*, vol. ii., constitute models for future investigation. Esmarch rubbed down definite spaces of wall paper with thoroughly sterilized sponge and cultivated the germs thus removed in various soils, finding thus, on an average, from various rooms 51 germs in 25 square centimetres, from which he computed 20,400 to the square metre; and to a whole room 979,200 a metre he thinks too small rather than too large. Any pathogenic germs in the air of the room must certainly constitute a certain percentage of this number and these germs, with the rest adhering but loosely to the walls, are liable to be detached at any time. Hence the danger of tearing off the paper from walls, whereby all kinds of microörganisms are set free in the rooms in efforts at disinfection which should be effected by means which incorporates everything in itself, as by rubbing down with bread to be subsequently burned. Such a method is now enforced by legal enactment in the city of Berlin. As was to have been expected, papers showing rough surface, as of silk or felt, offered lodgement to the greatest number of microörganisms. Painted walls with smooth surfaces contained less than smooth, unpainted papers. Closets but rarely opened always contained much fewer microörganisms, evidently because of less infection of the air and speedier gravitation. In all cases the number was greater nearer the floor.

Regarding specific microörganisms, model studies were made with tuberculosis by Cornet. These observations of Cornet, which extended over a period of two years and were first published in abstract (*auto-referat*) in the *Wiener medizinische Wochenschrift*, June 2, 1888, constitute the most remarkable contribution to the etiology of tuberculosis since the disclosure of the tubercle bacillus by Koch in 1882. The fact that all experiments hitherto had failed to discover tubercle bacilli in the air or in the walls of houses led the author to adopt the inoculation test with sponge scrapings from walls and beds of rooms occupied by phthisical patients. The sponges were, of course, previously thoroughly disinfected, and the animals inoculated, freshly bought and free from infection, were, if not dead from other disease, killed after the lapse of forty days—a period in which the disease remains confined to the peritoneum into which the injections were made.

The walls and headboards of beds, posterior surface uncontaminated by sputum or hands, of 21

rooms in 7 hospitals of Berlin occupied by phthisical patients were scraped in this way and 94 animals were inoculated with the scrapings. 15—*i. e.*, two-thirds, of the rooms furnished tuberculous matter. Of the 94 animals, 53 died of other diseases; of the remaining 42, killed after forty days, 20 were tuberculous, 22 sound. The frequency of tuberculosis among the insane led the author to examine the walls of 3 asylums, all of which furnished a virulent tuberculous virus. Dust removed in 11 cases from different places in the near vicinity of tuberculous patients was introduced into 33 animals, of which 16 died of intercurrent disease, 3 were found to be tuberculous, the remaining 14 healthy. 61 dust tests from the walls of houses of 53 private patients affected with tuberculosis, were introduced into 168 animals, of which 90 died soon after the injection, 34 were found tuberculous, the rest sound.

Control experiments from houses not inhabited by tuberculous patients, from surgical wards, operating rooms, crowded streets in Berlin, various public buildings, gave negative results.

Of 311 animals, in all, inoculated with dust from rooms inhabited by phthisical patients 167 died soon after infection, 59—*i. e.*, one-fifth of the whole number, were found tuberculous, and 85 were healthy. A room in a hotel occupied for six weeks by a phthisical actress, and a workshop occupied by a tailor who had directly communicated the disease to a fellow worker, were found infectious. *But in no case was the dust of the walls infectious where sputum cups or handkerchiefs were used exclusively to receive the expectorated matter*, notwithstanding the fact that such sputum often abounded in bacilli.

These observations, which singularly confirm the first statements of Koch, that the disease is chiefly spread by dried sputum, furnish convincing proof of the possibility of preventing tuberculosis pulmonum altogether, a possibility which should be seized upon with all the more avidity, in that the same author shows the futility of all specific treatment with the most varied agents.

From this brief and superficial survey of the constitution of the air the inference is fair that the contagious diseases are contracted not outside but inside the walls of houses, from microörganisms liberated from previous cases of disease, and circulating in the air or lying latent upon the walls and floors of houses, until detached by currents of air and inhaled into the bodies of susceptible subjects.

The proper disinfection of a room would mean, therefore, the removal of all carpets, rugs, curtains, upholstery, to be shaken in the open air and ventilated by exposure in it for several days; the subjection to steam heat of all bedding and clothing in any kind of contact with the sick; the rubbing down of walls with bread or bread-stuffs, which compose the bulk of the patent compounds for this purpose, two or three times successively, and the scrubbing of floors with solutions of corrosive sublimate, one part to one thousand parts of water; withal, the ventilation of the room day and night for several days, at least, to remove as much as possible germs still floating in the air; *in short, to bring as far as is possible the inside into the condition of the outside air by dilution, which is, after all, in the absence of fire, the essence of disinfection.*

But inasmuch as the extinction of a spark is easier than the suppression of a conflagration, the true method of making the air of a locality aseptic is to stamp out the spark. There is, as yet, nowhere in our country, at least, from lack of authority, any systematic attempt at the destruction of the germs of disease as they are produced. The discharges of typhoid fever, cholera, dysentery, yellow fever, are turned into sewers or scattered over soils with the same indifference as in the days when bacteriology was unknown, and with total disregard of its discoveries. Smallpox, which needs it least, meets with more attention from health authorities than scarlet fever, which is more fatal than cholera. Let it be mentioned, in passing, that but a single soldier in the whole army of Prussia has died of smallpox in the last thirteen years. Tuberculosis, which is now believed to be always acquired, and which destroys two-sevenths of mankind, meets with no check at all. The fear of "taking cold," by shutting out all ventilation, is largely responsible for the concentration of pathogenic microörganisms in sick rooms and the consequent dissemination of contagious disease.

Conditions which tend to render the atmosphere of a locality aseptic. Let us consider the subject from the standpoint of a place selected for the habitation of man and erect a house which is to remain, as far as possible, aseptic. It will stand facing the sun on a dry soil in a wide, clean, amply sewered, substantially paved street, over a deep, thoroughly ventilated and lighted cellar. The floor of the cellar will be cemented, the walls and ceiling plastered and thickly whitewashed with lime every year, that the house may not act as a chimney to draw up into its chambers microörganisms from the earth. Doors and windows, some of which extend from floor to ceiling, will be as abundant as circumstances permit, and will be adjusted to secure, as much as may be, thorough currents of air. The outside walls, if of wood or brick, will be kept thickly painted, not to shut out penetrating air, but for the sake of dryness. All inside walls will be plastered smooth, painted, and, however unæsthetic, varnished. Mantels will be of marble, slate, iron, or, if of wood, plain, and whether natural, painted or stained, varnished. Interior woodwork, including floors, will all show plain surfaces and be likewise treated. Movable rugs, which can be shaken daily, in the open air, not at doors or out of windows, where dust

is blown back into rooms, will cover the floors. White linen shades, which will soon show the necessity of washing, will protect the windows. All furniture will be plain, with cane seats, perhaps, but without upholstery. Mattresses will be covered with oiled silk; blankets, sheets, and spreads, no comforts or quilts, will constitute the bedding. Of plumbing, there shall be as little as is necessary, and all there is shall be exposed, as is the practice now. The inhabited rooms shall be heated only with open fires, the cellar and halls by radiated heat, or, better, by a hot-air furnace, which shall take its fresh air from above the top of the house and not from the cellar itself, or the surface of the earth, where microörganisms most abound. There will be "house cleaning" twice a year. Put into this house industrious, intelligent, and informed men and women—absolutely essential conditions, and as much will be done as at present may be done to prevent the dissemination from it of contagious disease, when an inmate brings it home from a septic house, hospital, sleeping-car, school-room, theatre, church, etc. A city of this kind, with a city government by such people, conditions which at present exist only in Utopia, would, least of all, permit to be introduced into it cases of infections like cholera and yellow fever, which must be imported from a distance on each invasion.

A PECULIAR ABSCESS, PUS FROM WHICH CONTAINED THE MICROCOCCUS TETRAGENUS.[1]

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A HEALTHY woman, eighteen years of age, entered the Buffalo General Hospital, October 18, 1887, with the left side of her face and lower jaw so much swollen that the mouth could not be opened. She gave the statement that she had had a very carious third lower, left molar tooth for some time; that she had consulted a dentist about it; that for some reason or other he had failed to remove it or relieve her, and that a week before she entered the hospital her face had begun to swell. On examination, a brawny, carbuncular phlegmon was found, extending from the left ear above to the mastoid muscle behind, the hyoid bone below and the middle of the chin in front. The induration was very firm, could scarcely be indented with the finger, and apparently gave but little pain, since even on questioning she made but little complaint of it. Her temperature was never above 100°, her pulse not materially disturbed, her bowels sluggish; except for the location of the swelling, which extended too high, I should have regarded it as an illustration of the infectious submaxillary angina of Ludwig. It had the same character of induration and much the same indolence of disposition.

I kept the part poulticed, and daily applied mercurial ointment, with the idea of hastening suppuration; but in this respect I was disappointed, since, after three weeks of diligent poulticing, only in three small points were any evidences of softening observed. All this time the front teeth could not be separated to exceed a quarter of an inch; her general condition remained about the same. After waiting until November 9th, I anæsthetized her in my clinic, forcibly pried apart her jaws, and, with great difficulty, succeeded in extracting, bit by bit, the offending tooth, which was a mere shell, its cavity being entirely carious and its substance quite fragile. After doing this, I made incisions into each of the points of softening, evacuated a small amount of pus and débris from each, and then, with a sharp spoon, scraped out as much of the surrounding tissue as seemed judicious. Her convalescence was slow; the induration about the parts persisted for a long time. It subsequently seemed advisable to open two or three small collections of pus, but she was not anæsthetized for this purpose again. She gradually recovered ability to open her mouth, and by the last of December the swelling and induration had subsided sufficiently to allow her to go home.

At the time of the operation I made several inoculations, on gelatine and agar jellies, of pus from the depots of softening. These were subsequently carefully cultivated and plated out, and were found to contain the two common forms of staphylococcus and the unusual micrococcus tetragenus. It is on account of the latter that I have reported this case. So far as I know, this has not been previously found to be pathogenic in man, although it is known that when mice or other small animals are inoculated with it experimentally, they die in three or four days. It is stated that this organism is occasionally found in human *saliva* and in sputum.

According to Koch, these germs are also found in tuberculous cavities, forming groups often surrounded with capsules. When an animal is inoculated with these, it dies in three or four days, with symptoms of septicæmia or pyæmia, and with metastatic abscesses in the spleen and kidneys. Large masses of the microbes are found, especially in the vessels and in the pulp of the spleen. Cornil and Babes have also found this germ in a syphilitic abscess, in groups and encapsulated, and in several metastatic (pyæmic) abscesses in the same case. It is not at all improbable that their occurrence in connection with syphilis was accidental. Aside from these instances, so far as I know, their presence has never been associated with any distinct pathological condition, and I am unaware that it has been considered in any sense, in man, a pyogenic organism. The path of infection in this case was undoubtedly through the diseased tooth. Whether the micrococcus tetragenus was the principal source of the infection, or even whether it is capable of so acting, I am unable to say; also, whether to it is due the fact that one may have induration and tardiness of resolution. Not having found any case in which

[1] Reported to the American Surgical Association, Sept. 18, 1888.

this organism had been supposed to have any pathogenic effect in man, I herewith report this one as of some pathological interest.

CANTATORY PARESIS.

By J. SOLIS COHEN, M.D.,
of Philadelphia.

Cantatory paresis is a variety of vocal disability experienced only in singing; the voice remaining good in all portions of the register utilized in ordinary conversation.

Clinical History.—After some unusual vocal effort or after some ordinary vocal effort during a period of debility, a singer's voice will begin to fail at some special note of the register. In some instances failure is limited to a single portion of the register. As determined by the researches of Langmaid (*The Medical Record*, May 26, 1883, p. 576) this will most likely occur at the ninth note in the scale in the key of C, for tenor and soprano voices; and at the seventh for base and contralto voices. In other instances all tones are uncertain above the one at which the break begins.

Pathology and Morbid Anatomy.—In some instances no pathological condition can be detected. In most cases there is a slight congestion of one or both vocal bands, which becomes more and more pronounced as the defective tone is approached in singing the scale from below upward. In marked instances there may be a lack of due longitudinal tension of the vocal bands, so that the glottic orifice remains elliptic in its entire extent and does not close posteriorly as the voice rises in pitch. This is due to failure in the proper contraction of the thyro-arytenoid, lateral crico-arytenoid, and crico-thyroid muscles.

It is possible that undue strain may stretch, or tear, or otherwise impair some of the delicate muscular fibrillæ of the thyro-arytenoid muscles, so as to interfere with the adjustment of the vocal bands necessary to produce the tones at which failure occurs. This failure throws undue effort upon other muscles in the endeavor to secure the tension necessary for cantation; and this effort fatigues the muscles and produces atony with irregularity in contraction, and consequently in phonal vibration of the vocal bands.

Symptomatology.—There is a lack in the precision of the tone as the point of failure in the scale is reached; and this is sometimes associated with an involuntary slide or a tremble. Prolonged effort, as in singing, is quite fatiguing and sometimes painful. The conversational voice remains unimpaired.

Etiology.—The most frequent cause is overfatigue of the intrinsic muscles of phonation, from undue exercise in forced efforts beyond those required in the ordinary adjustments of the vocal bands for the natural emission of the tones made. This may be due to prolonged effort under ordinary conditions of health, or to customary efforts made during impaired conditions, whether physical or mental, or both. Faulty respiration in singing (Mandl, Paris, 1855) is, perhaps, the next most frequent cause.

Diagnosis.—There is usually a lack of longitudinal tension of the vocal bands, and, in some instances, the bands are more or less undulatory in outline on their horizontal surfaces. The vocal bands are usually somewhat congested, in some instances with a pearlish translucence. In the absence of positive laryngoscopic evidence of atony, the character of the voice and the history of vocal fatigue remain the sole features in diagnosis.

Prognosis.—The prognosis is good, provided that the voice be given proper rest and that suitable therapeutic measures be instituted. Should these precautions be neglected and the voice be continued in use, permanent injury may be sustained and the voice, for many months or even for a year or longer, may be rendered useless for singing purposes.

Treatment.—The first element in treatment is absolute rest of the singing voice and comparative rest of the conversational voice; that is to say, avoidance of all unnecessary use of the voice. The next point is attention to any impairment of the general health. Strychnine, quinine, and cocaine are the special medicinal agents most likely to be directly beneficial to the impaired muscles. Finally, systematic vocal exercises, limited to the unimpaired portion of the register, and daily percutaneous applications of currents of induction from one side of the larynx to the other will assist materially in overcoming the muscular atony, and thus hasten restoration of the vocal powers. Great care should be exercised in resuming prolonged vocal efforts for a year or two after apparent cure has been effected, lest the condition recur in an aggravated form.

In cases of moderate disability it is possible so to arrange the music as to avoid using the tones in which the voice shows impairment (Langmaid).

A CASE OF MARKED ŒDEMA OF THE LABIA UTERI DURING PARTURITION.

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The following case occurred eleven years ago, and is now placed upon record because of the extreme rarity of the class to which it belongs, and to show the ease with which gross errors in diagnosis are sometimes made under strange but otherwise simple conditions. During these eleven years I have not met a similar case in a pretty wide acquaintance with our periodical literature, nor did I find

the subject in an examination of a dozen or more text-books.

Mrs. B. had been in her third labor three hours when her physician called me, believing that he was confronted by a placenta prævia, although there had been no hemorrhage. Upon digital examination these curious conditions were found: The finger met in the orifice of the vagina a mass of tissue, somewhat cone-shaped, with the apex downward and base above, attached to and continuous with the vagina, and forming with it a cul-de-sac. It presented the doughy feel of œdematous tissue, which is not unlike that of the placenta. Upon sweeping the finger around the mass carefully a fissure was discovered, which divided the whole length of it into two very nearly equal parts, of which the inner surfaces were continuous with the cavity of the uterus. It was then clear that the mass was a growth from the os uteri or represented the labia of the os enormously thickened and elongated. Each of the lips was about two and a half inches long, three inches wide, and nearly half an inch thick at the base, from which they tapered both in thickness and width to a blunt point or edge, the whole shape bringing to mind strongly the figures and descriptions given of the elongated nymphæ of some of the South African tribes.

The external genitals were normal, and there was no œdema in any other part, but the case was further complicated by more common irregularities above the os uteri. The os was fully dilated, and the superior strait of the pelvis was engaged by a small fœtal head in the first position of the vertex, one arm and the funis. The patient was put in the knee-elbow position, the arm and cord pushed above the brim, and held there until the accession of the next contraction of the womb, when the head descended to the floor of the pelvis. Two more pains completed the delivery of the child without difficulty, and the woman recovered in the usual time.

There was no ascertainable cause for this anomalous appearance of the lips of the uterus. A bilateral rupture of the os and cervix in a preceding labor might suggest itself, but such a theory lacks the necessary support which a history of the symptoms of rupture would give it. She said she was in good health before this pregnancy, and has not shown any signs of uterine disorder since. It would be useless then to speculate further upon the causation.

MEDICAL PROGRESS.

The Sterilization of Milk at the Time of Milking.—Raudnitz, before the Central Organization of German Physicians in Bohemia, on July 15, stated that milk obtained from a cow three weeks before, and kept at the ordinary temperature of a room, remained as alkaline as immediately after milking, and was not to be distinguished by taste, odor, or appearance from freshly drawn milk. This circumstance, as well as the fact that repeated boiling, to which a sample was subjected, produced no change, bespeaks entire freedom from germs, without any bacteriological examination. The steam apparatus in the stalls for boiling the feed is also used to sterilize the glass receptacles furnished with air-tight rubber stoppers, so that there is no extra cost. A covered wooden tub with shelves of perforated tin plate receives the bottles. By means of a pipe steam is passed into the tube from below. Prior to milking, the udder of the cow, the milk-pail, and the hands of the milker are carefully cleansed. The milk is strained through clean linen directly from the pail into the sterilized bottles. Should a steam apparatus not be accessible, the bottles can be sterilized in a large, covered vessel. Upon the recommendation of the speaker, sterilized milk is so prepared and sold at Hostiwitz, near Prague, during this autumn. Since introducing among his patients milk thus sterilized, he has seen no cases of diarrhœa. Constipation is the rule upon weaning; in which case a small quantity of carbonate of magnesium or phosphate of sodium may be added.—*Wiener medizin. Presse*, Sept. 9, 1888.

Surgical Treatment of Peritonitis.—Leucke, of Strasburg, reports a case of peritonitis coming under his notice, treated by operative procedures, occurring in a youth of sixteen, who drank a glass of beer, and soon afterward felt a severe abdominal pain. He was admitted into hospital with all the signs of acute peritonitis; temperature 106°. The abdomen was opened the same evening, and half a litre of pus removed; it was then washed out with a weak sublimate solution, and a thick drainage-tube was placed in Douglas's pouch. The patient went on well for six weeks, when a subphrenic abscess developed on the right side, which soon broke into the pleural cavity. Resection of the seventh rib was performed, and drainage instituted with perfect success. There was doubtless a latent intestinal ulcer with first perforative peritonitis, and, subsequently, localized peritonitis, which broke through the pleura. Dr. Heuser, of Bremen, has lately operated in three cases of perforation of the vermiform appendix. Two of the operations were successful, but in the third there were metastatic abscesses in the liver, which soon caused death. In each case the abscess was sharply defined, though without extensive adhesions. Dr. Heuser thinks that many such cases which end fatally might be saved by surgical treatment. Professor Czerny, of Heidelberg, operated in perforative peritonitis in an obscure case; a large quantity of odorless gas escaped, and the stomach was found adherent to the liver and anterior abdominal wall. The intestines were normal. Unfortunately, no attempt was made to free the stomach, and the patient died on the fourth day. On *post-mortem* examination there was found a gastric ulcer and subphrenic peritonitis. An odorless gas in such cases indicates perforation of the stomach; a fetid gas intestinal perforation.—*British Medical Journal*, Sept. 15, 1888.

Electricity in Goitre.—In a case of goitre which had been treated for two years with no success, Weinbaum obtained a cure by use of the galvanic current. The electrodes were gold needles and were thrust into the sides of the tumor for several millimetres and a moderate current applied for fifteen minutes. A superficial eschar often formed at the negative pole, but this wholly dis-

appeared with the ending of the treatment, which included one hundred and five *séances*.

His second was more successful than the first, only fifty applications being necessary.—*Lyon Médical*, Sept. 1888.

Cocaine Anæsthesia in Surgical Practice.—Jaffé (*Aerztl. Practiker*, No. 16) recommends the more extended application of cocaine anæsthesia in surgical practice, in many cases obviating the use of chloroform, with its dangers, and rendering an assistant unnecessary. He uses a five per cent. solution to which he adds an antiseptic, according to the following formula:

R.—Cocainæ hydrochlor.	. .	gr. xxiv.
Acid. carbolic.	. . .	gr. x.
Aquæ dest.	. . . .	f ℥j.—M.

Of this, two or three divisions of a Pravaz syringe are injected at several points in a line corresponding to the course of the proposed incision. In four or five minutes the anæsthesia is usually complete, and the incision can be made without the consciousness of the patient. In operations upon the extremities the suggestion of Corning, that after the injection the part above be constricted by a rubber tube, is most practical. By this means, besides the artificial anæmia, a notable prolongation of the anæsthesia is secured. Ordinarily the influence lasts from twenty to thirty minutes. Should sensibility to pain return during the course of the operation, a few drops of cocaine are placed in the open wound, the operation is suspended for a few minutes and is then again proceeded with. After the removal of a tumor, the wound is disinfected in the usual manner and closed by a few stitches. The passage of the needle is felt by sensitive persons, but is not perceived as actual pain. Intoxication may arise, but is rare if some care is observed; still it is wise to have at hand a quantity of amyl nitrite, which has proved itself the most effective antidote. A list of operations, from the experience of the author and from that of others, in which cocaine anæsthesia proved satisfactory, follows. Among these were the removal of foreign growths, neoplasms of small and moderate size, incisions for paronychia, abscesses, furuncles and phlegmons, removal of ingrowing nails, tracheotomies and herniotomies.—*Münchener medicin. Wochenschr.*, Aug. 28, 1888.

Splenectomy.—A successful operation for the removal of a floating spleen has been performed in Trieste, by Liebman. The patient was a woman, aged twenty-eight years, who in her third pregnancy noticed a hard round tumor in her abdomen toward the left side, below the level of the umbilicus. For some time the swelling remained stationary, but five months before she came under the care of Dr. Liebman, it began to grow rapidly and to cause great pain, especially when she moved about. She became quite unfit for work, and on November 24, 1887, was admitted into the Ospedale Civico. On examination, the liver and spleen appeared to be normal in size, the area of dulness corresponding to what was supposed to be the latter, extending in the left axillary line from the eighth to the tenth rib, whilst its vertical diameter seemed to be about seven centimetres. The abdomen contained a roundish but somewhat oblong tumor about the size of a small adult head, which appeared to rest on the upper margin of the pelvis. The mass, which was situated rather to the left of the middle line, was evidently intraperitoneal. Its surface was smooth, with a kind of notch in the middle. It was movable in every direction, and could be carried up to the margin of the ribs on the right side as well as on the left, but could not be pushed into the hypochondrium beyond that point. There was no adhesion to the abdominal wall in front. A distinct systolic *bruit* could be heard over various parts of the mass. The uterus was normal, but followed the tumor when the latter was pushed toward the right, but not when it was carried over to the left side or in an upward direction. The tumor could be freely handled and moved about without pain. There was no albumin in the urine, of which rather more than a litre was passed in the twenty-four hours, and there was no disturbance of digestion. A diagnosis of ovarian or mesenteric tumor was made, and laparotomy was determined on. On December 13th Dr. Liebman opened the abdominal cavity by a median incision eighteen centimetres in length, and divided the peritoneum, which was remarkably thin and transparent along the whole length of the wound. The ovaries were atrophied, and neither they nor the uterus had any connection with the tumor. On drawing the latter out of the abdomen it proved to be the spleen, enlarged to four times its natural size, whilst *in situ* its convex surface had been directed upward and forward, and was adherent for a great part of its extent to the omentum. The mesenteric vessels were tied and all the attachments of the tumor carefully divided between double ligatures, till only the pedicle (formed by the vessels. etc., entering the hilum), which was as thick as the little finger, remained. This was then divided into three bundles, each of which was tied separately, the end of the last ligature being finally passed round the whole for additional safety. The pedicle was further secured by a second ligature two centimetres and a half higher up; and, lastly, it was again tied close to the spleen. It was then divided between the two last-mentioned ligatures, and the spleen removed. The organ measured seventeen centimetres in length and ten in width, and weighed 600 grammes. Having satisfied himself that there was no blood in the peritoneal cavity, the operator closed the abdominal wound with seven deep sutures taking in the peritoneum, and five superficial ones. A Listerian dressing was applied. The patient rallied from the operation, and, with the exception of a good deal of tympanites, did well till the eighth day, when the sutures were removed, the wound having healed without suppuration. On the night of December 21st menstruation began. A good deal of pain accompanied the discharge, and there was some pyrexia. Soon extensive parametritis set in, which, however, yielded to general treatment. The patient remained weak and anæmic for some time, but finally left the hospital completely cured on March 25th.—*British Med. Journal*, September 15, 1888.

Destruction of Corns and Warts.—Mason recommends the following, a small portion of which is to be painted over the growth:

R.—Lactic acid	. . . . .	10 parts,
Salicylic acid	. . . .	10 "
Flexible collodion	. . .	80 " —M.

—*Les Nouveaux Remèdes*, Aug. 1888.

The Diuretic Action of Beer.—Mori (*Archiv f. Hygenie*, Bd. 7, S. 319) conducted a series of experiments in the Munich Institute of Hygiene to determine to what extent the use of beer affected the secretion of urine, to which ingredient the action was due and how this action was to be physiologically explained. After the author established the action of beer beyond a doubt, he endeavored to learn whether it was shared by other alcoholic liquors, and found that wine possessed a still more powerful diuretic influence. The use of carbonic acid water and of diluted wine spirit (four per cent.) increased the amount of urine for several hours, the increase with the latter being the most marked. The author hence concludes that it is the alcohol to which is due the increased diuresis of beer and other alcoholic liquors. As a result of experiments with the other constituents of beer he finds that the ingestion of a decoction of hops gives rise to an irritation of the urogenital apparatus (beer urethritis) which may be prevented by the simultaneous use of small quantities of nutmeg. At the conclusion of his work, the author endeavors to explain theoretically the alcoholic diuresis.—*Centralbl. f. die ges. Therap.*, August, 1888.

Paste for Toothache.—

Acid. arseniosi	2 parts.
Cocaine muriate	2 "
Menthol cryst.	0.5 part.
Glycerine q. s. to make a paste.	

Introduce into the cavity of the aching tooth.—*Amer. Journ. of Pharm.*, August, 1888.

Sterilization of Surgical Instruments.—By means of experiments at the Hygienic Institute, at Berlin, Dr. H. Davidsohn (*Berlin. klin. Wochenschr.*, No. 35) has determined that the simplest and safest method of destroying germs contained in the blood or pus adhering to instruments, is to boil the latter at 212° F. for five minutes. Anthrax spores, as well as other pathogenic germs, such as tubercle bacilli, the micrococci of pus, etc., are by this means effectively destroyed. After an operation, the instruments are placed in cold water and the pus brushed off; water is passed through syringes and canulæ, which are left filled. The instruments are then boiled for five minutes in a covered water bath, at a temperature of 212° F. After removal, they are dried with a sterilized cloth. When they are to be employed again, they are boiled for five minutes, removed, and permitted to cool, and then used without immersion in a disinfecting fluid. The method is safe; it does not injure the instruments; it is convenient; it does not occupy much time; it is cheap; and it may be carried out in any private house. It should be observed that the boiling must be done in a covered vessel, as the water in an open vessel only reaches 212° F. at the bottom.—*Munchener medicin. Wochenschr.*, September 4, 1888.

Chloride of Ethylene.—M. Dubois has been experimenting with chloride of ethylene on dogs, and finds that it is an anæsthetic far superior to chloroform. He gave it by inhalation, and among the singular effects it produced was an opalescence of the cornea. Both corneæ assumed a bluish tint like thin porcelain, which gave a peculiar staring effect to the dog's eyes.

Contrary to expectation, no sloughing followed, but at the end of several months the cornea cleared up and regained a normal appearance.—*Gazette Hebdomad. de Med. et Chirurg.*, September 7, 1888.

The Vomiting of Pregnancy.—In connection with a case of obstinate vomiting in a pregnant woman who declined the induction of abortion, fatal in twenty-five days, Jaffé, of Frankfort (Volkmann's *Sammlung klinischer Vorträge*), discusses hyperemesis gravidarum. Three varieties of vomiting of pregnancy are to be distinguished. In the one, the vomiting occurs only in the morning, on an empty stomach. This is the most frequent, and the prognosis is good. In the second, which is not rare, the woman vomits in the morning and also during the day after every meal, though but a part of the food. The appetite is good, and the nutrition is not affected. With the occurrence of fœtal movements the disorder disappears. The third variety, the persistent vomiting, is rare. It begins with conception or later on. Whether primigravida or multigravida are the more often affected has not yet been determined. The etiology is unknown. To say that the affection is a reflex neurosis, brought about by irritation of the uterine nerves, is indefinite. The course of the disorder may be divided into three stages. In the first, all food is rejected, there is no fever, but there are thirst, epigastric pain, pytalism, frequently constipation, anæmia, and emaciation. In the second stage, there is moderate fever, the tongue is dry, and the epigastric pain persists. The breath is offensive, the urine is concentrated and contains albumin and casts, the results of a nephritis induced by inanition. The emaciation and debility increase. In the third stage, there is high fever, delirium sets in, the patient becomes soporose and dies. The diagnosis is easy. The distinction is to be made as to gastric disorders and neuroses. The prognosis is very dubious. It is influenced by the time at which the hyper-emesis occurs and by the life or death of the fœtus. Dietetic-medicinal treatment is useless, as a rule. Opium and bromides act best. When local disorders exist, the appropriate remedies are effective—for uterine displacements, reposition and pessaries, for inflammations, astringents. Should the dietetic-medicinal treatment fail, the pregnancy should be ended; but the third stage shall not have been reached, for in this the patient is hopelessly lost.—*Wiener medizin. Presse*, Sept. 9, 1888.

Pseudo-ulcers of the Tongue.—Velpeau has already described imaginary tumors of the female breast as a special class not to be operated upon; they consist in somewhat hard and sensitive lobules of the gland and intercostal neuralgias, with localized pains in the gland. Verneuil (*Bulletin de l'Académie de Médecine de Paris*, Séance du September, 1887) makes a similar classification of certain ulcers of the tongue: painfulness and a pseudo-ulcer depressing the spiritus of the patient are the factors. The author has seen five such cases, which resemble one another. They are pure lingual neuralgias; a true ulcer is not to be discovered; a psychical condition seems to predispose to the disease. Three causes may be assumed, the arthritic diathesis, false teeth, and tabes. The prognosis as to life is favorable, as to longevity unfavorable. Bromide of potassium and moral treatment are most effective.—*Medicin. Chirurg. Rundschau*, August 1.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 6, 1888.

INTRAPERITONEAL RUPTURE OF THE BLADDER.

SINCE the brilliantly successful cases of recovery after abdominal section for intraperitoneal rupture of the bladder by MacCormac and Holmes more than a year had elapsed until the July journals brought us reports of three new cases which all terminated in recovery. One is recorded by Mr. Halstrom (*Lancet*), another by Dr. H. H. Grant (*Journal Amer. Med. Assoc.*), and the third by Dr. A. Blum (*Archives gén. de Méd.*).

These cases, together with those already tabulated by Morton, and by Grant in his present paper, make a total of 16 cases operated upon. Of these, 7 have recovered and 9 have died, a mortality of fifty-six per cent. But if from this we deduct 8 fatal cases which were not operated upon until an average time of 28 hours after the receipt of injury the death-rate diminishes very greatly, whilst if, further, we deduct the ninth death, which was due to faulty suture of the bladder and subsequent intraperitoneal leakage, the percentage of deaths following operative relief becomes *nil*. Therefore, may we not justly conclude that such rupture of the bladder, provided that but a few hours have elapsed since the occurrence of injury, and that no serious concomitant accident, such as crush of the pelvis, is also present, should be amenable to surgical technique, such as has been described by MacCormac and Holmes, with a death-rate no higher than that of uncomplicated ovariotomy?

The technique has proved practically perfect from its incipiency, and no improvements upon it have even been suggested. But diagnosis, on the contrary, is sadly behind the perfection of the relieving measures. Many a man even yet dies for want of an unequivocal sign or series of signs or symptoms which will prove intraperitoneal rupture of the bladder, and, even granting the possession of such certain tests, many would even then continue to die because of the frequent absence of symptoms calling attention to the bladder as the seat of injury until it may have become too late to interfere, as violent peritonitis will have commenced or the patient has entered a state of fatal toxemia from absorption of urinary excreta and products.

These points are well exemplified in the report of Blum's case, which, by the way, is the first operation of the kind which has been reported from France. In abstract it is as follows: An intoxicated stoker was run over by a heavy wagon and very shortly afterward admitted to the Hospital Riboisière. The wheels had only passed over his thigh, but witnesses stated that the horse had stepped upon his abdomen. The bruised extremity constituted the patient's chief complaint, although he also had great desire to micturate but could not. A catheter was, therefore, introduced and normal quantities of clear urine were from time to time by that means withdrawn. No other abdominal symptoms were noted until he had been in the hospital nearly twenty-four hours, when signs of rapidly developing peritonitis were observed. At that time more clear urine was withdrawn by catheter. Upon the following day as the abdominal symptoms had become accentuated operation for *peritonitis* was undertaken. This was forty hours after the accident. A large quantity of clear fluid, having the appearances of urine flowed from the peritoneal cavity when it was opened and signs of acute peritonitis were there present. Not until now was rupture of the bladder even suspected, but upon examination of that organ a one inch tear was discovered in the upper portion of its wall a little to the left of the median line. There was no bloody infiltration of the edges of the bladder wound. Ten Lembert sutures were required to close the rent. The peritoneum was cleansed, the superficial wound closed, and a permanent drain left in the abdomen. Convalescence was uninterrupted and his recovery rapid, an unaccountable acute cystitis on the thirteenth day being the only drawback. This lasted for but a day or two and did not interrupt his progress.

As exemplified in the above and other cases, a formerly much-thought-of diagnostic sign has been proved of but little worth either as a positive or negative one. This is the presence or absence of sanguinolent urine, for in several reported cases clear urine has been repeatedly and in large quantities withdrawn from bladders which have afterward been found badly torn, whilst bloody urine is even more frequently withdrawn from an intact bladder. Likewise, it has been shown that absence of urine or the withdrawal of large amounts, are signs not much to be relied upon in forming a diagnosis. The question whether a drain shall be left in the abdominal cavity or not is still an undecided question, but we should be inclined to do so in any case if more than a few hours had passed since the accident or if any signs of peritonitis were present at the time of operation.

Two things we would suggest in forming a diagnosis of vesical rupture; first, always to *think of the possibility of injury of that viscus* in any serious or obscure accident; and second, to add to our present tests for its occurrence the *gentle introduction of hydrogen gas into the organ* and noting whether it escapes into and distends the general cavity of the peritoneum or simply distends the bladder itself. This experiment we have tried upon both male and female bladders before and after artificial rupture, and have met with such successful results as to justify the belief that it is a diagnostic sign of great promise. Possibly an extraperitoneal rent might make its presence known during such a test by giving rise to emphysema of the surrounding tissues.

YELLOW FEVER IN THE SOUTH.

It is a question of grave doubt whether the imposition of land quarantine against localities in which yellow fever prevails is justified by our knowledge of the nature and mode of propagation of this disease. The consensus of medical opinion is opposed to the contagiousness of yellow fever, but favors the view of its miasmatic origin. It is believed that the cause is a living miasm developed in a locality under favorable conditions of climate and soil, and those who suffer from the morbific agent do so only within the area of its generation and occupation. Under certain circumstances the peculiar emanation may be air-born, as is believed to have been the case at Bermuda, where successive outbreaks of yellow fever occurred without there being any other source from which it could have been derived. But then it does not give rise to the disease until after it undergoes further development in a congenial soil under favorable climatic condition. Or, the potential agent may be carried to distant places in the foul hold of a ship, which for the time becomes a locality engendering the disease but affecting only those who come within reach of the emanations from it. The spread of the disease at such places depends on whether the local conditions are favorable or not for the further development of the miasm.

There is not sufficient evidence to sustain the opinion that the importation of cases from fever-smitten localities to healthy places will give rise to outbreaks of the disease. Another characteristic of yellow fever is that it is chiefly developed in cities and towns which have maritime commerce, whether that be upon the seacoast or upon rivers. It is not by the traffic of the great thoroughfares of land, but by means of commerce carried on by ships, that it is diffused. It would seem, therefore, that strict sanitation broadly applied, particularly to vessels from localities where the disease prevails and to the localities themselves, and the removal of the healthy unacclimated population from the area of fever prevalence, are the best means of checking the spread of the disease.

Inland quarantine, which inflicts unnecessary hardships, paralyzes trade, and leads to demoralization, does not seem to be warranted by the facts at our command. The accounts which appear in the daily press descriptive of the plans being pursued in the South, show how mischievous demoralization may become when it acquires the ascendency over calm and judicious direction of scientific measures.

The ninth volume of the invaluable *Index Catalogue of the Library of the Surgeon-General's Office* has just appeared. It contains 1054 pages, and extends from "Medicine (popular)" to "Nywelt." It includes 13,151 author-titles, representing 6834 volumes, and 12,818 pamphlets, and 9999 subject-titles of separate books and pamphlets, and 29,120 titles of articles in periodicals. Like its predecessors, it has been compiled under the supervision of Surgeon John S. Billings, and its publication is one of the most gratifying evidences of the intelligent liberality of the National Government.

The President has directed Dr. George M. Sternberg, Surgeon, United States Army, to proceed to

Decatur, Ala., and to such other points in the infected districts of the Southern States as he may deem necessary to continue his scientific investigations of the yellow fever.

AMONG the new books announced for the autumn we notice *The Fatal Illness of Frederick the Noble*, by Sir Morell Mackenzie; *Lectures and Essays on Diseases of the Nervous System*, by Dr. J. S. Bristowe; on *The Artificial Feeding of Infants, and the Diseases which Arise from Faults of Diet in Early Life*, by Dr. W. B. Cheadle; *A Treatise on Gout*, by Sir Dyer Duckworth; *A Text-book of Human Anatomy*, by Dr. Macalister; a translation of von Jaksch's *Text-book of Clinical Diagnosis*, and a work by Mr. Lawson Tait on *The Diseases of Women and Abdominal Surgery*.

THE Members of the Municipal Chamber of Rio de Janeiro are raising a subscription for the purpose of sending a testimonial to Charcot and the Italian physicians who attended their Emperor.

AN Italian society for internal medicine will shortly be organized at Rome, for the furtherance of practical and scientific interests. Among the organizers are Baccelli, Cantani, Bozzolo, de Renzi, Cardarelli, and others. Evidently this new organization is a further outcome of the stimulus given by Leyden in the foundation of the Society for Internal Medicine. The first Congress will be held in Rome from the 15th to the 18th of October of this year. Among the papers already promised are: "Diabetes and its Treatment," by Cantani; "The Etiology and Therapy of Pneumonia," by Bozzolo and Maragliano; "The Treatment of Tuberculosis," by de Renzi and Riva; "Fever and Antipyretics," by Murri et Rossoni; "The Therapeutics of Cardiac Diseases," by Giovanni and Rummo.

AT the last Congress of Polish Physicians and Naturalists, upon the suggestion of Prof. Rydygier, a Society of Polish Surgeons was formed, the first meeting of which will be held next year, in connection with the opening of the surgical clinic recently erected at Cracow.

THE election of Prof. Gerhardt as Rector of the University of Berlin for 1888–9, has been confirmed by the Emperor.

BIEDERMANN, of Prague, will succeed Preyer at the University of Jena.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

Third Annual Meeting,
Held at Washington, September 18, 19, and 20, 1888.

(Specially reported for THE MEDICAL NEWS.)

SEPTEMBER 18TH.—MORNING SESSION.

The PRESIDENT, DR. WILLIAM H. DRAPER, of New York, called the Association to order and delivered

THE PRESIDENT'S ADDRESS.

He said: We are met as "friends in council," to present and compare the results of our individual experience, to discuss the questions which vex us, and to add something, if possible, to the enlargement of the science and the improvement of the art which constitute the aim and purpose of our lives. The Council has decreed that there must be a formal introduction to this function, and, instead of following the excellent example of my predecessors, and showing my respect for your precious time, I am compelled to subject you to an infliction from which I would gladly stay my hand.

From its beginning the medical art has been struggling to rid itself of superstitions and delusions. It has always been hampered by the tyranny of tradition, and in our day it is bewildered by the revelations of science. How to assimilate the discoveries in the etiology of disease, in physiology, in organic chemistry, and in psychology, and how to make them all contribute to more exact diagnosis and more rational therapeutics are the great problems which ever lie in the path and confront the conscience and the resources of the practical physician. As I have said, there is always the danger that science may become prematurely practical, and art, therefore, falsely scientific. It is well to remember that in one sense practical is always in advance of scientific medicine, and that in another it is always in its train. It is always in advance, because it is ever referring new problems to science to solve; it is in its train, because it has continually to test and digest the theorems which science suggests for their solution.

There is no better illustration of this statement than that which is afforded by the history of parasitism, the latest and most portentous contribution which science has made to the theory and practice of the healing art. The observations and speculations of practical physicians may be said to have led up to this discovery, and the revelations of scientific investigation have suggested the theorems which are now being tested by the practical physician. Already the applications of these theorems may be said to have reformed surgery, and to have given a new and hopeful direction to the rational treatment of disease, but it is not yet safe to affirm that the doctrine of parasitism may not be forging new errors in diagnosis, and beguiling us into dangerous paths in therapeutics.

Bacteriology indeed affords a curious and interesting example how, in the cycle of human knowledge, history repeats itself, and how ancient ideas present themselves clothed in new forms, but revealing the same essential nature. For what is the germ theory of disease but a concrete form of the abstract idea that disease is an entity, an enemy that invades and destroys, that must be contended with as a foe, and exorcised as a demon? It

is the old "deus ex machina" come back to us to explain the mystery of disease. This time he is, to be sure, tangible; we can distinguish the variety of his hosts, and count his battalions. He is no longer the "pestilence that walketh in darkness," and we are entering upon the crusade against him as if he were the cause of all our woes. He is verily become a germ of universal discord.

But not only has the germ theory revived, in more exact and tangible form, the ancient pathology; it has reinaugurated, as a natural and necessary sequence, experimental efforts to destroy the germ; and as, in the olden time, the attempts to exorcise the demon often led to the destruction of the victim, so, in these latter days, there is danger lest the war upon parasites should add new and worse perils to their hosts. It is still possible that we may not only exaggerate the influence of germs in the production of disease, but the necessity also of destroying them at all hazards, as the only principle involved in antagonizing their effects. We may well believe that we are on the eve of momentous changes in the healing art, resulting from discoveries in bacteriology, but these changes must come mainly from the independent and judicious application of these new ideas to the study and treatment of disease by the practical physician at the bedside.

Already the relations of bacteria to the pathology and treatment of fever furnish an illustration of the way in which clinical observation enlarges and complicates the problem which the pathologist has to solve. Until we know how microörganisms produce fever, whether by their irritation of nervous centres, or by the increased oxidation incident to their multiplication, or by the development of ptomaines, or in some other as yet unexplained way; until we know whether the fever they produce, however produced, is a salutary or a dangerous process, to be antagonized or let alone, we are really in no better position to treat fever rationally than we were before the etiological relation of bacteria to fever was suspected. Were it not that clinical observation and experience are thus continually complicating the problem and opposing new obstacles to the precepts of experimental pathology, a check would not so soon have been given to the indiscriminate use of antipyretics and parasiticides.

I have cited bacteriology as one illustration out of many which might be given, of the independent nature and special aim of scientific medicine, and to show how practical medicine must pursue, in dealing with scientific theorems, an equally independent method in testing and applying the precepts which these theorems suggest. And as scientific medicine has divided and specialized its work, in the many departments of science which contribute to our knowledge, so practical medicine, by the specialization of its aims and the division of its labor, illustrates the independent growth and progress of the medical art.

In the Congress which has gathered here at this time we have a significant acknowledgment of this fact, and an abundant confirmation, if any were needed, not simply of the mutual dependence of the science and art of medicine, but of their independent developments, science ever seeking to solve the problems in the path of art, and art determining for itself its own limits and possibilities.

Dr. W. W. Johnston, of Washington, then read a paper entitled,

Geographical Distribution of Typhoid Fever in the United States.

Typhoid fever, he said, is admitted to be a very generally distributed disease in the United States, but there is a great difference of opinion as to what constitutes typhoid fever—what symptoms are essential to its recognition. The difficulties lie in the fact that typhoid fever is frequently a very mild disease, with few of the characteristic symptoms; and that sometimes the illness is so slight that its true nature is not recognized until some sudden accident, as hemorrhage from the bowels or perforation, reveals its true nature. The difficulty is increased still more by the simultaneous occurrence, in malarial districts, of forms of fever which have some of the symptoms of typhoid and some of malarial fever. The question is to determine to which category such obscure or doubtful cases belong. In the present paper the effort was made, by a study of the prevailing forms of continued fever in different portions of the country, to determine the relative value of their symptoms, and to arrive at more precise rules of diagnosis. Such a study reveals the fact that the principal forms of fever recognized are: (1) true typical typhoid fever; (2) true typical malarial (remittent or bilious) fever; (3) adynamic malarial fever; (4) typho-malarial fever; (5) anomalous obscure forms appear as simple, continued fever, gastric fever, autumnal fever, etc. An analysis of the symptoms given by physicians in different parts of the country shows that great difference of opinion prevails as to the symptoms of these fevers; but such an analysis and comparison show also that true typical typhoid fever and true remittent fever are clearly defined; that "adynamic remittent fever" is a term which is used to designate a class of fevers consisting partly of remittent fevers, and partly of typhoid fever of a typical character. In regard to typho-malarial fever, no fixed ideas exist as to what symptoms indicate it; and so great is the confusion, and so hopeless the task of giving this disease an appropriate place, it is clear that much would be gained by abandoning the terms altogether. As regards the obscure forms mentioned, there is the tendency to class many of them under the head of mild or typical typhoid fever. But there is a great deal yet to be learned about these forms; and much progress can be made by a close study of the microörganisms found in the blood of these cases, and by a closer study and unbiassed appreciation of their symptoms.

Dr. George M. Sternberg, U. S. A., said that the subject is one that had engaged his serious attention at different times, and he quite agreed with Dr. Johnston in his conclusions with reference to typho-malarial fever. He thought that term should be abandoned, and from his own study and observation he had been led to think that at least a majority of such cases should be regarded as a mild form of typhoid. From his experience in the extreme west, where malarial fever does not appear, he has seen cases which were typical examples of typhoid. In reviewing the Army statistics collected during the war, he found some years since that typho-malarial fever had a very low mortality, and yet the prevailing idea was that it was typhoid fever with malarial complications, and it was difficult to understand how the complicated disease could

have a lower mortality than simple typhoid fever. His own view with regard to it was, that the line has been drawn between the mild and severe typhoid.

DR. OSLER, of Philadelphia, said that there was no doubt that from the extensive and widespread researches of Laveran we have been able to show, by the characteristic changes in the blood, a decided difference between malaria and typhoid fever. He spoke with considerable emphasis on this point, because these observations and researches have been repeated all over the world: in Algiers, in France, in Italy, and in Baltimore, Philadelphia, Boston, and New York in the United States, and recently in India by a most elaborate series of observations by Dr. Carter. The characteristic changes in malaria are as distinctly determined in the blood as are those of tuberculosis of the lungs in the sputa. He desired to impress upon the Association the extreme value of these observations of Laveran. A practical physician can no longer overlook them in discriminating between the different forms of fever.

DR. F. PEYRE PORCHER, of Charleston, said that it struck him as very remarkable that Dr. Johnston did not speak once of irritative fever. Dr. Wood, in his treatise, has devoted a whole chapter to its consideration. He thought gastric remittent fever was a distinct disease. Irritative fever exists on a mountain plateau and in cities.

DR. JAMES C. WILSON, of Philadelphia, said that Dr. Johnston's maps indicating the regional prevalence of typhoid fever fully conform to the views entertained by those physicians who have devoted themselves to the study of fevers in cities. In newly settled countries malarial fever prevails, and after a time typhoid and malaria exist side by side. In addition to the test which has been proposed by Dr. Osler, it seemed to him there is another which has scarcely received the attention it demands, and that is the etiological study The outbreak of a fever of a doubtful type in a village should, in all cases, be subjected to the etiological test, and if there prevail a number of such cases, the character of which can hardly be definitely recognized side by side with typical cases of enteric fever, the weight of opinion must be in the way of viewing these cases as types of that disease. Confusion in the diagnosis is not only dangerous in regard to the treatment, but, what is of much more consequence, it retards our knowledge of the fevers of this country.

DR. J. E. REEVES, of Chattanooga, said that more than a quarter of a century ago he had made clinical observations on the subject of enteric fever. He had been following up these observations, feeling more or less interested in the subject, and has gone through epidemics, some very mild, others malignant and exceedingly fatal. He firmly believed that typhoid fever is as communicable as any other of our infectious or contagious diseases. In the observations to which he alluded he tried to discover and run down the history of typhoid fever in Northwest Virginia. He discovered that the first case of the disease recognized in all that wild expanse of country could be traced directly to a previous case, which was brought from Athens, Ohio, in 1832. It is the general impression that, since the epidemic of cholera in 1832, typhoid fever has become the type of the fevers all along the elevated regions. He observed this fact, also, that in the low grounds or lower levels frequently typhoid fever exists with the malarial type of the disease, but as we ascend the hill country the pure, unmixed type prevails. He has been unable to discover the conditions which are to guide us in separating the two affections, and accordingly to direct the treatment. Whenever he found a broad, flabby, creamy tongue with indentations of the teeth, he found that quinine was not only permissible, but decidedly beneficial. By the use of a few doses he was enabled to eliminate the malarial element. Some seasons the disease is exceedingly mild, probably not one fatal case in twenty. At other times the disease is exceedingly malignant, and probably one out of four will die. It is a disease peculiar to youth and middle life. He has seen children not more than six months old having pure uncomplicated typhoid fever. He has seen it very rarely in the octogenarian. His conclusion is, therefore, that the typhoid fever may prevail anywhere the infection may be carried. Wherever it finds a lodging place we will there have a centre, from which the disease may spread over the entire country.

DR. JOHNSTON, in closing, said that he did not intend to present a complete study of the disease, but tried to show that the prevailing opinions in this country were based upon clinical observation. In the absence of the study of microörganisms great errors existed, and we must start upon a new basis.

DR. JAMES H. HUTCHINSON, of Philadelphia, then read a paper on

THE MANAGEMENT OF THE STAGE OF CONVALESCENCE IN TYPHOID FEVER.

He reviewed the question of diet in convalescence of typhoid; called attention to the exhausted and irritable condition of the patient; and favored the use of a light diet, as a rule, for the first ten days or so. Rest, gradual return to exercise, fresh air, and mental repose were advised; also care about exposure to cold and about constipation. The causes of relapses were discussed.

DR. J. E. REEVES said that he had hoped, from the title of the paper, that the author would allude to some of the accidents which frequently occur; without the slightest cause, during the third or fourth week, patients are sometimes suddenly seized with pain in the abdomen—in a word, with all the symptoms of perforation, and yet they recover. He had himself witnessed seven such examples. He had on four or five occasions seen patients, after they had been able to be out of doors for five or six days, seized with some hallucination, as that their lives were threatened, with permanent impairment of mind succeeding. He could furnish several examples of derangement of mind following typhoid fever without any perceptible cause. The fact is, the period of convalescence in typhoid fever is to him a most anxious one as regards the welfare of his patients.

DR. GEORGE L. PEABODY, of New York, desired a word of explanation with regard to the administration of solid food to convalescents in typhoid fever. He believed that there are a number of patients to whom the administration of solid food would not be judicious, viz., patients who have suffered from severe attacks of the disease. Patients who are anæmic and markedly depressed in their nervous systems are not, as a rule, clamorous for solid food. These patients, he thought, should not be given any solid food. On the other hand, there are patients who have had the ordinary series of

symptoms of typhoid fever, lasting three or four weeks, who oftentimes regain their appetite and desire for solid food days before the fever has left them. As a rule, he thought with such patients it was safe to begin with a small allowance of finely divided meat once or twice a day if they bear it well. He has done this several times where a recrudescence of the fever followed. He had in his experience met with a number of examples in which the administration of small amounts of solid food to patients, after the fever had left, was not only not harmful, but had been of aid; and he did not think he had ever seen any bad results follow the practice. The administration of an egg is just as likely to do harm as finely divided meat.

Another point he would like to refer to, and that is the subject of ulcers as the cause of diarrhœa, and on this point he must differ from Dr. Hutchinson. He did not believe the presence of ulcers bore any relation to the presence of diarrhœa. He had too often followed a case of typhoid fever to the autopsy table to agree with Dr. Hutchinson in this regard. Diarrhœa, he believed, was due to the catarrhal condition of the intestines, which may or may not be present in any given case. On this account it seemed to him, if there be no diarrhœa present and no specially profound depression, it is perfectly proper to administer solid food soon after the period of fever had ceased.

Dr. William Ord, of London, said that he came from the other side of the Atlantic, and would put forward his experience with that of Dr. Hutchinson. In regard to diet, he would agree with him, but he was also in agreement, from frequent experience, with Dr. Peabody. He had been naturally under the influence of his colleague, Murchison, within the past few years. On more than one occasion of late, he has had warning that one must be guided to a certain extent by the desire of the patient for food, and he has learned to give into this desire in general. He would quote a case which occurred a month or two ago. It was a girl in St. Thomas's Hospital, who had a severe attack of typhoid fever, and convalescence had set in. Then, without any existing condition to account for it, she began to have a large range of temperature, rising steadily in the evening and falling in the morning, till at the end of three days the range of temperature was from 3° to 5°. With this she became slightly delirious, and menaced her physician when he came around. Then, for two or three days more, the temperature was still higher with more disorder in her mind and craving for food. Now he tried the effect of giving her solid food. She was allowed at once boiled sole. Within twenty-four hours after taking the fish her temperature became normal for four hours, her delirium ceased, and from that time on she made an uninterrupted recovery. This is an instance of what we have to do in all cases of convalescence, viz., the study of the individual as well as of the fever.

With regard to diarrhœa, he would say there is a good deal of reason in Sir William Jenner's explanation that where diarrhœa is conspicuously present there is also a conspicuous presence of ulceration in the large intestine, where it is apt to be associated with extensive catarrh. Certainly, in epidemics which he had watched from year to year in London, the existence of these things has been very notable. Where there is much diarrhœa, there is considerable ulceration existing in the large intestine, which post-mortems have enabled us to verify. This bears also on the question of relapse. It was only ten or twelve years ago that many relapses were noticed in London. Up to that time they had the typical form of diarrhœa, then they had epidemics in which constipations were more marked, and then the trouble of relapses, by which he meant not recrudescence, but a complete second attack. When constipation existed, they used to give castor oil. After long study of these cases, he has come to the conclusion that the relapses were, in all probability, due to an infection from within; that long constipation had allowed time for germs to produce a second infection.

There are one or two points in relation to sequelæ he would like to ask Dr. Hutchinson. Very often, in long-continued cases of typhoid fever, we have periostitis and phlebitis, and he thought deep ulceration in the larynx was a common occurrence. He would like to know if these ulcers have been often observed in this country. Phlebitis is a thing that always puzzled him, and with regard to which he would like to have some information.

Dr. F. P. Kinnicutt, of New York, believed that relapses in typhoid fever were simply the result of re-infection and not of imprudence in diet. He believed we frequently see recrudescences of many of the symptoms from imprudence in diet, and it seemed to him that, although there are undoubtedly cases carefully selected in which solid food may be safely given and possibly with benefit, shortly after the disappearance of the fever, there are also cases in which solid food may work ruin to the patient. The advice, if given generally, would be abused, and he thought the rule mentioned by Dr. Hutchinson is the best one for the profession to follow—careful regulation of diet during the first ten days. There are many cases, however, which may be benefited by solid food after the disappearance of the fever.

Dr. F. C. Shattuck, of Boston, said that mention had been made of relapses, and also of recrudescence. He had noticed, during the stage of convalescence in typhoid fever, a persistent rise of temperature, which was neither recrudescence nor relapse, and which did not disappear until the patient got out. It seemed to be a bed fever. He is satisfied of the existence of this fever, and thought it important that we should recognize its existence, and not be alarmed by it. Certainly, it seemed to him the more we see of temperature, the more we think its ways are past finding out, and the less significance we are disposed to attach to it.

Dr. J. C. Wilson, of Philadelphia, said that the question of diet, during the early period of convalescence, is one of such importance, and such divergent views have been expressed here, that he ventured to ask Dr. Ord in regard to the single case he related, as to the diet of the patient prior to the mania he spoke of. Is it not possible that this patient's mania might have been due to defective nutrition or starvation?

Dr. Ord said that previous to the administration of solid food the patient had been given beef tea and milk, in the proportion of two parts of beef tea to one of milk, as freely as the patient could take it, and two days before the occurrence of the maniacal symptoms two eggs a day had been given in addition.

Dr. Hutchinson said that the sequelæ of typhoid fever are very frequent in this country, as shown by

Dr. Keen, of Philadelphia, in his Toner Lecture. For instance, there is an endarteritis and also an orchitis which are very common after typhoid fever. Dr. DaCosta some years ago called attention to the fact that a low grade of fever occurred in convalescence, which was cured by the patient's being ordered out of bed. On the other hand, a recrudescence will occur if the patient gets out of bed too soon. Recrudescences are also frequently due to masturbation, to which patients at this stage of the disease appear to be peculiarly liable. The sequelæ are very numerous and are all mentioned by Dr. Keen in the lecture previously referred to.

DR. GEORGE ROSS, of Montreal, then read a paper on

SOME FORMS OF PARALYSIS AFTER TYPHOID FEVER.

He first showed that while typhoid is a great strain on the nervous system, bringing to light its weaker points, and causing general exhaustion and anæmia, it produces sometimes nervous lesions in addition to these. These lesions consist in proliferation of connective tissue (interstitial neuritis) about the nerve trunks, usually, but also parenchymatous degenerations of the spinal cells and cerebral cortex. The results are paralysis, paraplegia, and sometimes loss of sensation. These are, however, usually recovered from. They are undoubtedly caused by the typhoid poison, not the fever exhaustion, or the anæmia. The signs of exhaustion of the nervous system are constant, and generally in proportion to the severity of the fever. The nervous phenomena are almost invariably both motor and sensory. The variety of forms taken is very great, though mainly the nervous injury is manifested by pains, areas of increased cutaneous sensibility, and paralysis.

DR. ORD said that there were some things in the paper which interested him very much. He could not say that he had seen many of these cases of peripheral neuritis. They are rare in his practice. So also he would say that paraplegia, dependent upon other causes than peripheral neuritis, is rare. He had observed indications of cerebral weakness, long-continued imbecility, remarkably protracted silence, and difficulty of articulation. He had seen cases after a very severe attack, in which there had been a long period of comparative uneasiness, in which the patient had spoken at the rate of a word every two or three seconds; and in more than one case he had seen a patient come out of a condition of uneasiness, be unable to speak at all, and recover the power of speech only after several days. In one case in a marked degree he found the patient unable to speak at first, and that he had in fact lost the faculty of remembering words and had to learn to speak over again. This was more apt to occur in young children from seven to eight years of age, and in one case he had seen the process of learning to speak had to be recommenced and developed as originally. He thought all these changes were rather due to changes in the central nervous system than in the periphery; also to inflammatory changes penetrating the tissues. He found it convenient in dealing with these and other sequelæ, as well as the complications of enteric fever, to classify them in his own mind. He has been accustomed to classify them, first under the head of complications which were, so to speak, inherent in this particular kind of fever, and probably those forms of neuritis and cerebral weaknesses are among the characteristic weaknesses. Then he should take those belonging to fever in general, and those complications and sequelæ which are accidental and to a large degree personal. It had been noted by one of the speakers that typhoid fever probably awakens latent mischief in those cases which are followed by phthisis. He thought there was good reason to believe that it has the general power of arousing existing mischief, which was up to the time veiled. In people of rheumatic tendency, we will find it awakening a rheumatic condition. It seems to have the quality of bringing out things which were masked and hidden before.

DR. FRANCIS MINOT, of Boston, said that one idea which struck him on hearing Dr. Ross's paper read, was the possibility of these different sequelæ of typhoid fever being caused by more than one germ entering the system. There are certain diseases, we know, which apparently have the same microbe; as, for instance, pneumonia and cerebro-spinal meningitis. The germ from the healthy human saliva will produce pneumonia in an animal, and in its tissues will be found the true pneumonic germ, and possibly some of those additions to disease may be caused by the same germ entering afterward. Among the sequelæ of typhoid fever are dumbness, which may be due to some other germ acting after the fever has run its course. He had seen a patient of eighteen who was unable to speak a single word after a severe attack of chorea.

DR. M. ALLEN STARR, of New York, said that it was pretty well admitted that neuritis may be due to infectious causes, and yet it seemed to him that a word of caution may be uttered in regard to ascribing all cases that follow typhoid to the influence of the typhoid germ. It seemed to him that if all the cases of neuritis following typhoid were due to the typhoid infection, neuritis would be much more frequent than it is. He had looked into the matter somewhat, and found that neuritis was a very infrequent sequel of typhoid fever. He had seen within the past few years cases of general peripheral neuritis following typhoid. In all cases they were alcoholic. We know that alcohol is one of the frequent exciting causes of multiple neuritis, and it is doubtful whether neuritis following typhoid is due to the typhoid germ, or to alcohol taken during the disease.

There is another class of cases to which Dr. Ross alluded, viz.: those in which the neuritis is due to one or two nerves being involved. Is it not possible in those cases that, instead of the neuritis being due to any infection, it is simply the result of pressure upon those nerves? He has had three cases lately under observation of distinct peripheral neuritis limited to one nerve, which were due to pressure of the body upon the bed while the patients lay in a comatose state. Could not the neuritis of typhoid fever be explained by this means? It seemed to him this question might be answered by some of the gentlemen present. He did not know but that Dr. Ross's cases belonged to that form of typhoid fever in which there were central changes in the cord. These cases must be, he thought, very carefully distinguished from those with marked signs of general multiple neuritis.

DR. OSLER, of Philadelphia, thought that those who had followed the pathological history of late paralysis, would bear him out in stating that writers are divided into two classes, one stating that the late palsy is due to a neuritis, and the other that it is due to a polio-myelitis. This is also true of arsenical poisoning. Both clinical

and experimental evidence seemed to him to agree upon the fact that we may have a toxic myelitis or a toxic neuritis. Now in this disease it is the same; we may have typhoid fever lighting up a myelitis or a neuritis.

Dr. H. C. Wood, of Philadelphia, remarked that those who had studied the course of lead palsy had had to deal with this same problem, finding either central or peripheral paralysis, myelitis, or neuritis; and never able to say why one or the other occurred in a given case.

Dr. Francis Delafield, of New York, said that, although the lesions that have been described are not, after all, very common, yet they are such as belong to the disease. It seemed to him that the poisons of the severe infectious diseases behave in very much the same way as some of the mineral poisons; that is, they produce an acute degeneration of certain parts of the body, and with this acute degeneration there may or may not be added inflammatory changes, and the poisons of the infectious disease had the same capacity for producing acute inflammation that the mineral poisons have, but they differ as to the parts affected; thus, in diphtheria, it is the nerves that are affected; in typhoid fever we find the spleen swollen and changed; and so on, as we review the different diseases. That would seem to him the condition of things in typhoid fever, as regards the nervous system.

Dr. Ross, in conclusion, said that he had confined himself entirely, in his paper, to an account of those forms of paralysis which are of common occurrence, and avoided any reference to the cerebral manifestations occasionally met with in typhoid fever. He had seen cases which bore out the remarks made by Dr. Ord, and especially had he been interested in those severe forms of mental derangement which come on during convalescence, and last for an unexpected length of time. The possibility of alcoholic neuritis is universally admitted. He could not say the matter was looked into in the cases reported by him. That an alcoholic neuritis could be set up by partaking of small quantities of alcohol in an illness extending through eight or ten weeks was, he thought, unreasonable to suppose. As to the theory of pressure as a possible cause of neuritis, of course it was only in certain cases, such as those mentioned, that the theory could be entertained. Of course, there is, in the first place, the fact, alluded to by several speakers, of the existence of several forms of neuritis after the system has suffered from various febrile diseases, and another is a greater degree of severity of these forms of paralysis after the existence of pressure upon a nerve for a certain time. The fact that certain of these cases end in atrophy, and that some of them are actually permanent is, he thought, against the idea that a neuritis of such severity has been set up by pressure on a nerve. He thought we should endeavor to make a distinction between myelitis and neuritis. He had seen, in an epidemic a few years ago, a few cases of myelitis, and the prognosis in such is very bad. The disease progresses from bad to worse, and a fatal result may usually be looked for.

Afternoon Session.

Dr. F. Forcheimer, of Cincinnati, read a paper on

fatty heart.

He concluded, from the examination of 122 cases of obesity of the heart, that its cause is a fat accumulation similar to one in any other part of the body. It may occur at any time of life. Occupation has a bearing, especially change of an active muscular occupation for an inactive life when middle age is passed. Thus, when a man of active outdoor habits retires from business shortly after forty years of age and takes on idle habits, it is liable to occur. Men suffer more than women, because they more often change their habits with the beginning of their later years. Alcohol, and particularly beer, have much to do in causing fatty heart; also tobacco, coffee, and tea; also violent exercises, and prolonged business or emotional troubles.

It was necessary to divide the condition as we meet with it into two forms: first, a surrounding of the heart by masses of fat, with accumulations within or upon the pericardium and between the various septa. This could sometimes be made out during life by an increased area of dulness; but this was difficult owing to the amount of subcutaneous fat usually present on the chest of the patient. We had to depend on autopsies in the main for our information. In the second class the myocardium itself was invaded by a diffused fatty infiltration of oily globules, and its function as a muscle was checked, the muscular fibres atrophied and became distorted and sometimes became degenerated. The latter, however, might be due to the general cause which had led to fatty deposition as well. At any rate, the myocardium became soft, flabby, and easily torn. The results of this were that sometimes hypertrophy, sometimes myocarditis or rupture supervened, but rarely any valvular lesions, also impaired circulation, venous stasis or obstruction.

Symptoms in the first class of cases were not many. The chief one was shortness of breath on exertion or excitement, resulting from sudden accumulation of blood, which was, in this condition, often excessive in amount, and from compression of the lung by the masses of fat around the heart. It came on slowly.

The second class of cases gave a history of sudden accession of heart trouble, dyspnœa at night and after meals, inability to sleep after retiring, angina or cardiac asthma; also, sometimes, apoplectic symptoms were present, due to an accompanying fatty change in the cerebral bloodvessels.

As for objective signs, a dilated heart would give the same objective signs as a fatty heart; we had to judge from all the other symptoms of the patient. Auscultatory percussion told something at times. The rhythm and sounds were to be studied; a bruit was sometimes present, due perhaps to an imperfect contraction, or to anæmia in some cases, or to nervous disturbances. After all, the guiding symptom was the disturbed heart-action taken in conjunction with the presence of obesity. If the parts were not fat, a diagnosis was impossible between fatty heart and several other morbid states.

His plan of treatment was Oertel's, which he did not think dangerous unless there were obstructions to the circulation in the heart, lungs, or elsewhere.

Dr. Jacobi, of New York, said that the author had spoken of fatty heart in connection with general obesity only. He did not know whether he assumed that fatty heart can occur only in such conditions of general obesity. He thought if we take into consideration other cases of fatty degeneration of the heart in which there is no obesity at all, or only a certain amount of it, we may come to a better understanding of the nature of the con-

dition. Fatty degeneration of the heart is to be taken as one of the symptoms of malnutrition. This may be the result of an excess of fats and carbons; it may be the result of a congenital condition leading to the same result. He had a case in mind which he would narrate. A lady, aged thirty-two, had been anæmic all her life, being rather fat. She died with all the symptoms of pernicious anæmia. In her case there was fatty degeneration of the heart and it was very slightly, if at all, enlarged. The cause of the fatty degeneration was malnutrition, which was due to the smallness of all the arteries of the body. The aorta and all the large arteries were very much smaller than normal, but in other respects they were normal. He would say that this condition resulted in insufficient nutrition and consequent insufficient muscular power of the heart resulting in fatty degeneration. The heart muscle undergoes the same changes that every other muscle does. When all the arteries of the body are too small the arteries supplying the heart muscles are also too small. We have to look for fatty degeneration of the heart when we have to deal not only with a surplus but with a want of food.

DR. KINNICUTT said that only a few days ago a gentleman told him he had seen a number of cases treated under the personal supervision of Oertel, and he thought that Oertel had modified his original views.

DR. SHATTUCK said that these cases are not as common in this country as in Germany, and not as common in his section of this country as in parts where there are more Germans. His practical experience with such cases was very small. In reference to the results of Oertel's method of treatment, his remembrance of the report of the discussion which took place at the Wiesbaden Congress was that damage had resulted, under the observation of several of the speakers, which was of a serious nature. It seemed to him there is no question of serious dangers in the Oertel plan of treatment, but these dangers are connected with the difficulty of diagnosis. It seemed to him that disastrous results had followed Oertel's plan of treatment, where it was applied to cases to which it did not belong—that is, in which the diagnosis was obscure.

DR. JAMES TYSON, of Philadelphia, said in regard to the diagnosis of this condition of fatty degeneration, it occurred to him that true fatty degeneration is not associated with obesity as is fatty infiltration, but is rather the result of chronic Bright's, or chronic endocardial disease. So that the diagnosis from this standpoint resolves itself into this: given a case of obesity with the symptoms of weak heart and the absence of any one of these conditions, either acute or chronic, we must come to the conclusion that we have a fatty infiltration which might be safely treated by Oertel's method.

DR. H. C. WOOD said that he thought the Oertel plan of treatment when applied to a certain class of cases was of great use, but the application of it is always attended with danger if we have a case in which the symptoms are severe. In the *London Medical Record* there are reported cases of sudden death due to the Oertel plan of treatment. The theory of the Oertel method is that the heart is a muscle and must be strengthened by exercise like any other muscle that has been wasted by want of use. But the heart never suffers loss in this way, because it must always perform its function. If we have a heart in which the muscular fibres are very seriously involved, we may have a heart which will give out under the strain and the symptoms become intensified. He thought the great danger of the method lies largely in the impossibility of diagnosticating how far the morbid process has gone on in the particular case. The method should only be used under very careful supervision, and with the distinct understanding, on the part of the patient, that there is a certain amount of risk in it.

DR. KINNICUTT explained that Oertel himself was very far from merely prescribing free mountain climbing. On the contrary, he graduated the distances to be walked very carefully, even to the distance in feet. His study of the individual patient was minute. He prescribed the diet and the times of rest; in brief, he took every element of the case into account.

DR. WOOD rejoined that he knew the Oertel method called for a withdrawal of fluids from the diet, stopping the use of alcohol, and the giving of a light diet free from fats; but that its peculiar feature was the exercise, and that was apt to be overdone and carelessly employed.

DR. FORCHEIMER, in closing the discussion, said he would simply summarize the results. The objection urged by Prof. Wood is the one put forward by everyone. The idea of a patient with a weak heart climbing up to the top of a mountain three or four thousand feet high is something stupendous, and he would naturally expect him to drop down and die. In fact, Oertel does not wish anything like that done. He first lets his patients walk a certain distance, then further, and so on gradually increasing the distance in proportion to his capability. It was upon him he made the experiments published in his book. The principal thing Oertel insists upon, in order to give the heart less work, is to abstain from fluids; in the first place his diet consists in a mixed dietary with an absolute reduction in the quantity of food taken in the twenty-four hours. He allows no oils except in small quantities. No harm will come to patients with weak hearts who climb mountains according to Oertel's plan of treatment. On the contrary, the fat in the heart substance was actually made to disappear, and the muscular fibres gradually grew through increased use and took the place of the fat. The only objection to the method was, that certain observers had reported that harm had come from its use. These charges were not further specified, and we had no means of knowing that the cases on which it was based had been of the class amenable to Oertel's method or that his ideas had been accurately carried out in regard to either diet or a strict graduation of exercise.

(To be concluded.)

THE ASSOCIATION OF AMERICAN OBSTETRICIANS AND GYNECOLOGISTS.

First Annual Meeting,
Held at Washington, September 18, 19, and 20, 1888.

TUESDAY, SEPTEMBER 18TH.

(Specially reported for THE MEDICAL NEWS.)

DR. A. CORDES, of Geneva, Switzerland, forwarded through the Secretary a paper upon

THE TREATMENT OF ENDOMETRITIS BY FUMING NITRIC ACID.

He described three cases of chronic endometritis successfully treated by the injection of from one-half to one

drachm of this caustic. Precautions were always taken to neutralize the acid in the vagina by a saline solution.

Dr. Cordes also reported four cases of

PUERPERAL ECLAMPSIA.

His treatment consisted of bromide of sodium in full doses; chloral hydrate per rectum; leeches behind the ears, and the use of the forceps in the interest of the child. Three of his four patients recovered. In a case in which he injected sodium bromide hypodermatically sloughing followed. In these cases he believes in as few vaginal examinations as possible, as they tend to produce convulsions.

Dr. Joseph Price, of Philadelphia, in discussing the subject of eclampsia, described the case of a primigravida, aged thirty-eight, in whom treatment by hydragogue cathartics and bromides was begun early in pregnancy. The child was delivered by forceps, labor being induced at eight months, and mother and child lived.

Dr. Joseph Price, of Philadelphia, then read a paper on

DRAINAGE IN ABDOMINAL AND PELVIC SURGERY.

He considered it important that the indications for drainage be as clearly defined in abdominal and pelvic as in other surgery. Regarding this, however, there is great diversity of opinion. He thought that if it can be shown that the drainage tube is not injurious, it should be frequently employed. Regarding the causation of the formation of fluid in the abdominal cavity he had seen an abundant exudate when but small adhesion of tissues was present. In a case seen recently there were extensive adhesions which were separated without the occurrence of oozing. A profuse discharge occurred subsequently, however, which was readily evacuated by the tube. Disease of the Fallopian tubes may occasion great effusion of fluid after an operation. In cases in which the tubes are not diseased and no adhesions are present he would not employ a drainage tube; he styles such cases simple cases. The cautery, at the time of operation, will often check oozing; the internal administration of salines in repeated doses is exceedingly useful to remove fluid effused after operation. Regarding damage caused by the drainage tube, he knew of no case in which it had been injurious. If properly cleaned, the tube is not a source of infection. There is also little danger that the tube will perforate or injure the peritoneum. To prevent omental adhesions he employs a packing of gauze or cotton-wick sterilized; this should be frequently renewed.

Dr. Price considered irrigation a valuable procedure in abdominal surgery; at the time of operation he retracts the tissues above and behind the uterus by three fingers forming a speculum; he then introduces water in a constant stream by siphon (Tait) or by a syringe. In this way he removes shreds which would otherwise remain. For irrigation he uses water only, sterilized by boiling; he believes antiseptic fluids to be injurious to the abdominal cavity, as they cause adhesions and subsequent pain. When the discharge is sweet, clean, and scant he removes the tube. He does not believe in drainage through the vagina. Hernia does not result from the tube, but from too long an incision; getting up too early, and neglecting to use a proper abdominal bandage.

Dr. F. Cushing, of San Francisco, forwarded a paper entitled

A CONTRIBUTION TO THE STUDY OF PELVIC ABSCESS,

which was read by the Secretary. He considered salpingitis and pyosalpinx the most frequent causes of this condition. Post-mortem examinations reveal the frequency of tubal inflammation. Gonorrhœa in the male is the most frequent cause. A case was cited in which direct infection from the husband was proved by the demonstration of the presence of the gonococcus on microscopic examination. Two cases of pelvic abscess post-partum were reported, one of which ruptured through the sacro-sciatic notch. Dr. Cushing prefers the aspirator as a means of diagnosis in ordinary cases; in complicated cases he performs laparotomy. The prognosis is ordinarily good. The treatment is evacuation; for pyosalpinx, abdominal section. A dilating trocar and soft rubber T drainage tube devised by the author were shown; the trocar resembled a uterine dilator, sharpened at the points. As an antiseptic hydronaphthol is preferred. When one evacuation by puncture does not suffice laparotomy must be done.

In the discussion of these papers, Dr. Eastman, of Indianapolis, stated that he had sharpened the points of ordinary uterine dressing forceps, using them to puncture a suspected pelvic accumulation. He drains for the first suspicion of pus. He regards permanent abdominal drainage a misnomer, as nature closes any opening with lymph. He closes abdominal wounds with especial care to prevent hernia, and brings the linea alba together with all possible accuracy. In 51 abdominal sections he has had but 1 hernia. Pelvic drainage is often needed, but should be made under the guidance afforded by abdominal section.

Dr. Montgomery, of Philadelphia, thought a clear understanding of the indications for drainage essential. The general condition of a patient is a guide to the probable occurrence of effusion. Patients should be carefully examined before operation, and the condition of the emunctories noted. The care of a patient after operation may obviate the necessity for drainage; fluids should not be given freely; the dressings should be applied tightly. If a tube is used, a small one is preferable; it should be carefully cleansed, and dental sheet rubber (rubber dam) may be used about it to prevent the infiltration of fluid. Sinuses forming after the use of a tube frequently necessitate laparotomy. In a large sac, with abundant adhesions, drainage per vaginam is best.

Dr. Marcy, of Boston, thought it of primary importance to remove the focus of suppuration, when drainage would not be needed. A drainage tube does not remove the source of the patient's danger, and the abdomen should be reopened if danger arises after operation. If drainage be employed, it should be *with gravity*, into Douglas's cul-de-sac, through a double tube.

Dr. Vander Veer, of Albany, instanced the success of the late Dr. Peaslee as an illustration of his belief in the importance of so operating that drainage is not needed. Abdominal section is safest. He avoids the use of a tube if possible. To prevent hernia he tightens the lowest stitch when the tube is removed. The incision is carefully closed; the drainage tube is fitted to the case.

DR. PRICE, in closing, said that he does not remove uterine appendages for pain, but for perceptible lesions. When cases are operated upon before extensive tissue changes have occurred, drainage is seldom needed; late and neglected cases require drainage. In operating especial attention should be given to removing all foci of disease in the broad ligaments. Forcible uterine dilatation, he had observed, is a frequent cause of pyosalpinx. He thought hernia is due to long incision; an incision admitting two fingers is ample. He had also seen hernia caused by the serre-nœud. In closing the abdomen he uses three or four sutures to the inch; including twice as much fascia (of the linea alba) as skin or peritoneum in his stitch. He had never seen a drainage tube, amid healthy intestines, occluded by lymph. He drains in about forty-five per cent. of his cases.

THURSDAY, SEPTEMBER 20TH.

DR. FRANKLIN TOWNSEND, of Albany, read a paper on the

PATHOLOGY OF EXTRAUTERINE PREGNANCY.

He believed that extrauterine fecundation is frequent. Ova may perish in the peritoneal cavity or become attached and live. A former inflammation in the peritoneum may afford a nidus for the growth of an ovum; pregnancy may occur at any portion of the genital tract. Tubal pregnancy is frequent; ovarian pregnancy is extremely rare. By primary abdominal pregnancy is understood the development of a fœtus to maturity in the abdomen; in secondary abdominal pregnancy the fœtus dies, a lithopædion resulting. In these cases the uterus often enlarges as in normal pregnancy; decidua forms, and many of the symptoms of abortion are present. A lithopædion was exhibited which had been carried in the abdomen of a woman for fifty years, the patient dying of another affection at seventy-six. In this case the tubes were normal, the uterus somewhat enlarged. After ineffectual labor pains the health of the patient declined, but became restored; menstruation was reëstablished and ceased normally; labor pains recurred at intervals during the patient's life.

DR. JOSEPH PRICE then read a paper upon

TUBAL PREGNANCY.

From a practical standpoint, these cases should be considered before rupture, at rupture, and after rupture of the tube. Before rupture the diagnosis is not positive; the symptoms present may be caused by various conditions. These cases are not generally seen until after rupture; patients are often anxious to conceive, which makes their subjective symptoms of little value. Amenorrhœa; pain severe, paroxysmal, long continued, caused by distention of the tube; continuous hemorrhage, with a discharge lighter in color than blood, and with the expulsion of the decidua vera, are symptoms present. The uterus is enlarged and displaced by a movable cystic mass. Rupture generally occurs at the twelfth or fourteenth week of pregnancy. Intraperitoneal rupture is attended by agonizing pain, shock, and subsequent peritonitis. Such an accident is not uncommon in multiparæ, and may be followed by death some time later. Dr. Formad, of Philadelphia, in the course of recent post-mortem examinations, had found eighteen such cases. Rupture may be attended by symptoms much less severe. The pain may resemble colic; hemorrhage may be inconsiderable. Peritonitis is usually absent; examination reveals a boggy mass in one broad ligament. The case may take a chronic course; the fœtus may survive and grow. In a case operated on by him at Camden, N. J., fœtal movements could be discovered on one side of the uterus. The sac in these cases is less movable than the gravid uterus; in the case already described the uterus was flattened by the pressure of the sac; when the sac was ruptured, it contracted normally. The cervix is displaced, and the pelvis is occupied by the fœtal sac. If the fœtus develops to term, spurious labor occurs; the fœtus may remain *in situ*.

DR. MONTGOMERY, of Philadelphia, in discussing the subject, thought a differential diagnosis was possible quite early. Different varieties of extrauterine pregnancy rupture at different periods. The symptoms of early rupture are those described by Dr. Price; he had seen two cases in which the usual signs of early pregnancy were present in which rupture was announced by collapse and pain: one recovered without laparotomy; the other recovered after operation. In the early stages, he believed electricity the best means of treatment; he does not approve of puncture; he would place one pole of a faradic current over the abdomen, and the other against the sac, in the vagina; ten or fifteen minutes' treatment for several successive days is generally sufficient. The subsequent growth of the placenta has not been proven. Electricity should be employed in the first four months only; should positive symptoms of rupture be present, laparotomy should be performed at once. After the fourth month he would destroy the life of the fœtus by electricity, and wait for the placental bloodvessels to become occluded. When the fœtus is viable he would operate in the interests of mother and child. In operating he would close the sac above, and drain through the dependent opening per vaginam.

DR. WATHEN, of Louisville, did not believe abdominal pregnancy possible without a previous peritoneal lesion. Tubal disease is the most frequent cause of extrauterine pregnancy. A diagnosis is rarely possible early, and cases cured by electricity are mistakes in diagnosis.

DR. BALDY, of Philadelphia, agreed with the preceding speaker. Electricity does not injure any pelvic tumor, but does not remove the sac, which is a source of danger. It occasionally produces rupture and death. Early diagnosis he thought impossible, and cited a case in which the usual signs of extrauterine pregnancy were present, but operation revealed an ovarian cyst.

DR. BYFORD, JR., of Chicago, thought that many cases rupture, but recover. Hæmatoma is often caused by extrauterine pregnancy. With care a diagnosis can often be made. He preferred electrical treatment in the first three months.

DR. MCMURTRIE, of Kentucky, described a case in which he operated, the child being in the abdomen, the membranes absorbed, and the cord shrivelled. The placenta was very large and decomposed. Very severe hemorrhage followed the attempt to detach and remove it; the patient died shortly after. He would advise waiting until the child had been dead for some time before operating.

DR. VANDER VEER closed the discussion. He believed that diagnosis is possible in some cases; in others not. The usual signs of pregnancy, with a new

growth behind or at the side of the uterus, are present, Those who use electricity report forty cases treated in America, with one death, before the fourth month of gestation. Early laparotomy, however, he considered the better means of treatment, as it removes the entire mass. After the fourth month he would wait until the child dies. Primary laparotomy is gaining ground, however, for these cases.

He reported two cases of neglected tubal pregnancy, followed by death from septic infection. He exhibited fœtal bones from a third case, in which the mother had conceived while carrying a dead fœtus, encysted near the rectum. He believed that Breisky's recent case, in which he removed the placenta, had shown that it should always be removed in such cases.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Tenth Annual Meeting,
Held at Washington, September 18, 19, and 20, 1888.

(Specially reported for THE MEDICAL NEWS.)

TUESDAY, SEPTEMBER 18TH.—AFTERNOON SESSION.

DR. CLINTON WAGNER, of New York, presented a paper on

RESIDENCE AT CERTAIN HIGH ALTITUDES AS A MEANS OF CURE FOR LARYNGEAL PHTHISIS.

He called attention to the fact that thirty-three per cent. of all cases of pulmonary consumption are in addition laryngeal, and proceeded to the discussion of the relative advantages of high altitudes, as represented by Davos-Platz and Colorado Springs, and lower altitudes, where the atmosphere is moist and warm. The objections to a high altitude depend upon the dryness of the air and the rapid atmospheric changes, but this may be overcome by instructing the patient to breathe through his nose, and by great care to avoid exposure. Dr. Wagner believes laryngeal phthisis is invariably secondary. He also reported four cases of this disease cured at Colorado Springs, but believes that climatological changes are of no value in this affection, provided the condition has passed from that of induration into ulceration. In the winter-time such patients in high climates should retire at sundown from the outside air.

DR. GLASGOW, of St. Louis, expressed the belief that high altitudes are harmful.

DR. SHIRLEY, of Detroit, thought that equally advantageous results are obtained simply by an ordinary change of air, as, for example, a visit to the seashore.

DR. JOHN N. MACKENZIE, of Baltimore, read a paper on

A HITHERTO UNDESCRIBED NEUROSIS OF THE AURAL APPARATUS CLOSELY ALLIED TO CORYZA SYMPATHETICA,

which, as he expressed it, resembles very closely what might be called "hay fever of the ear." In the one patient which he had seen the attacks have come on regularly every summer for twenty-three years, beginning soon after marriage while at the White Sulphur Springs, in Virginia. One of the chief symptoms is severe itching of the auditory canal, Eustachian tube, and throat. It always is unilateral during one season, but sometimes alternates in two successive seasons. He believes the condition to depend upon disorder of the sympathetic, particularly the spheno-palatine ganglion. In the discussion which followed, Dr. Shirley spoke of the great doubt which exists as to the real function of this group of cells, and expressed the opinion that this ganglion really has no vaso-motor action upon the throat.

DR. SAJOUS, of Philadelphia, spoke of a somewhat similar case under his care which was, however, secondary to nasal disorder.

DR. HARRISON ALLEN could not see why the Eustachian tube might not be affected in a similar manner to the nasal cavities by hay fever.

DR. MACKENZIE, in closing the discussion, quoted the results of Prevost, who, on stimulating the spheno-palatine ganglia, produced running of the nose and swelling of the mucous membrane.

DR. BRYSON DELAVAN followed with a paper entitled

FURTHER INVESTIGATIONS AS TO THE EXISTENCE OF A CORTICAL MOTOR CENTRE FOR THE HUMAN LARYNX,

and referred to a paper read by him during the Eighth International Medical Congress at Copenhagen. He believes that this centre exists in the region of Broca's third convolution, and cited the opinions of Landois and Garel, which supported this view. Garel saw a case of laryngeal palsy, with a lesion in this neighborhood; but in a case examined by Dr. Delavan no lesion could be found on macroscopical examination except marked atheroma of the bloodvessels. No microscopical sections have as yet been made.

WEDNESDAY, SEPTEMBER 19TH.—MORNING SESSION.

DR. JOHN O. ROE, of Rochester, read a paper on

INTERNAL ŒSOPHAGOTOMY, WITH THE REPORT OF SUCCESSFUL CASES.

He expressed the opinion that multiple incisions are preferable to dilatation for stricture; but this evidently was not the unanimous opinion of the rest of the Association, since the assertion provoked a considerable amount of discussion, in which opposite views were advanced. Among those taking part were Drs. Rice, of New York; Ingals, of Chicago; Langmaid, of Boston; Sajous, of Philadelphia; and Delavan, of New York. Dr. Rice, having advocated the employment of cocaine previous to the introduction of the œsophageal bougie, was criticised by Dr. Sajous, who thought such a measure fraught with danger, owing to the fact that the anæsthesia produced prevented the patient from aiding us in our direction of the instrument, and eliminated the useful symptom of pain. He also pointed out that if a soft spot existed near the growth, it was very readily punctured under such circumstances.

DR. BEVERLY ROBINSON, of New York, then read a paper on

DYSPEPSIA, AS REFLECTED IN THE MUCOUS MEMBRANE OF THE UPPER AIR-PASSAGES.

He stated that if catarrh of the upper air-passages has already appeared, the dyspepsia increases it to a very large extent, as the gases thrown off act as irritants, and the sour fluids, consisting largely of butyric acid and correlated compounds, also tend to make it worse. On the other hand, the dyspepsia may be the result of catarrh, and depend upon the fact that so much of the increased

secretion is swallowed as to disorder digestion and produce gastric irritation. The cure of the catarrh in these cases cures the dyspepsia. Another point which he thought might possess a causative action is, that the air passing through diseased air-passages may become so fetid as, when swallowed, to produce abnormal conditions.

Dr. Shirley, in discussing the question before the Society, thought that the constitutional condition of the patient is too often overlooked, and spoke highly of the value of exercise, diet, and other similar measures for the relief of such states. He also believed in the attention of the physician to the constitutional treatment as represented by drugs. He also thinks that the catarrh does not produce the dyspepsia so commonly as the dyspepsia produces the catarrh. Fresh air, and a large amount of outdoor exercise are extremely valuable.

Dr. Daly, of Pittsburg, thought the two conditions balanced one another. He has given up the use of tonics, such as strychnia, and relies upon small doses of calomel once or twice a week, which he usually follows by a moderate dose of a fluid extract of senna.

Dr. Robinson, in closing the discussion, said he had been very loath to speak so frequently before the Association upon this subject, as he had written of it in past years, but that he regarded it as being one of great importance, and thought it should receive much attention. He is of the opinion that, while drugs are not perhaps of as great value as some have thought, they are nevertheless much more useful than surgical interference so frequently resorted to, and he wished the Association to understand that he insisted upon this point most strongly. He has seen cases burned, cut, scraped, and snared, and fail to get well, when a few small points attended to from the standpoint of the general practitioner have produced a cure.

Dr. Harrison Allen, of Philadelphia, next read a valuable and exhaustive research on the

ANATOMY OF THE NASAL CHAMBERS,

in which he demonstrated several very interesting anatomical facts not generally well understood, both by means of skulls and wet preparations. The Association seemed much interested in the practical bearing of this paper.

Dr. Delavan spoke of the great value of this line of study, and of how many surgeons operate without the anatomical or pathological knowledge which is so essential for success. He also mentioned the fact that in quite a number of skulls examined by him, deformity of the nasal chambers was the rule rather than the exception.

Dr. Wm. C. Jarvis, of New York, followed with a paper entitled

NOTES ON A CASE OF NASAL CARIES, COMPLICATED WITH MENINGITIS, SUCCESSFULLY TREATED BY MEANS OF THE SURGICAL DRILL.

The case was one of a man with a distinct specific history producing very severe nasal symptoms accompanied by caries of the bone and preceded by the complete destruction of the mucous membrane covering the parts. The pain was excessive and so constant that the patient had to be kept constantly under the influence of anodynes. There was also much headache, tinnitus aurium, with hyperæsthesia of the scalp. The secretion was excessively fetid and life to the patient was a misery. There were great emaciation, weakness, and inability to perform any of the ordinary business of life. The treatment consisted first in the administration of anodynes, morphia to relieve the pain, the use of large doses of iodide of potash, and the disinfection of the nasal chambers by the thorough circulation through them of antiseptic solutions. Notwithstanding these precautions, meningitis developed, and the case became so serious that Dr. Loomis, of New York, was called in consultation. The man's appearance at this time was so exceedingly feeble that the prognosis given was particularly unfavorable and death was looked forward to as imminent. At Dr. Loomis' suggestion, however, the amount of the iodide was increased from 20 to 60 grains three times a day. This was continued for some time, the man rapidly improved and soon recovered sufficiently to permit of operative procedures directed toward the alleviation of the local disease. This was accomplished by the employment of a special surgical drill, by means of which the dead bone was removed.

AFTERNOON SESSION.

Dr. Clarence C. Rice, of New York, read a paper upon

ANTISEPTIC NASAL SURGERY.

He had come to discard tampons of antiseptic material, and the insufflation of antiseptics in powder, and relied chiefly on solutions, to be used by the patient in spray, from an atomizer. He conducted his operations under antiseptic precautions, and believed that he had obtained more speedy healing of tissues and freedom from untoward results in this way. He rarely had seen troublesome hemorrhage, but this was probably because he operated, removing rather less tissue than many. He usually kept his patient in his office for some time after operation; a cotton plug was inserted into the nostril, to cause coagulation which would extend to the point of operation and check bleeding; the application of cotton directly to denuded tissues he did not favor.

Dr. Harrison Allen, of Philadelphia, employed antiseptic precautions in nasal surgery, but had not observed any marked improvement in his results.

Dr. Charles E. Sajous, of Philadelphia, had two cases in his practice before he employed antiseptics which were apparently septic infection; since employing antiseptics he has had no trouble.

Dr. Frank Donaldson, of Baltimore, thought carbolic acid the best agent for promoting the healing of tissues after nasal operations.

Dr. E. Fletcher Ingals, of Chicago, prefers carbolic acid in about four per cent. solution. After operating he insufflates boric acid and iodoform into the nostril; to control hemorrhage he plugs the nose with strips of bichloride gauze soaked in a syrupy liquid composed of gallic, tannic, and carbolic acids, in glycerine; this plug he allows to remain from twelve to fifteen hours.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Special Meeting, held at Washington, September 18, 1888.

(Specially reported for The Medical News.)

MORNING SESSION.

In absence of both the President and Vice-President, Dr. Henry W. Williams, of Boston, was called to the chair.

Dr. David Webster, of New York, read a paper on

TENOTOMIES FOR THE CORRECTION OF HETEROPHORIA, WITH RESULTS.

Of forty cases, he had operated on twenty-five but once, sixteen had been subjected to a second operation, and three had been previously operated on by other surgeons. In three tenotomy had been done on the inferior rectus, in seven on the superior, in nineteen on the external and in twenty-six on the internal rectus. The operation had been done by raising the centre of the tendon, at its insertion, with the forceps, snipping it with the scissors, and then, with or without a strabismus hook, dividing each way until in all cases the whole width of the tendon was divided. The eyes were now tested, sometimes showing no effect on the deviation; snips were made equally on both sides of the tendon until a sufficient effect was obtained. Slight over-correction was aimed at and usually attained. He had three times been, subsequently, compelled to diminish the effect, by readjustment of the divided tendon. All operations were done under cocaine. In a single case there was reason to regret the operation. Of four epileptics, none were cured; in one there was a temporary suspension of the fits, which subsequently returned; and one thought the fits were favorably modified. Two cases of chorea seemed benefited, though not cured. In three men suffering from attacks apparently allied to hysteria, the results were strikingly good. In most of the cases the operation was done for headache or other symptoms of muscular asthenopia. The conclusions he had reached were: No person should have tenotomy done for heterophoria alone without symptoms of strain due to it. Very slight degrees of tendency to deviation may require correction. All other methods of treatment should be tried before resort is had to operation. The operation should be done under cocaine, and the effect produced from time to time tested with prisms. In judiciously selected cases the results are quite as good as are obtained with most other surgical procedures.

Dr. Henry Noyes, of New York, had no faith in spirit-level estimations of hyperphoria. These vertical deviations of the visual axes are frequently due to asymmetrical development of the bones of the face and orbit. He had in former years employed both prisms and tenotomy to remedy considerable degrees of vertical insufficiency, but without ultimate benefit. He was not willing to operate in any case in which there was not a distinct surplus of power in the muscle the tendon of which he proposed to cut.

Dr. Edward Jackson, of Philadelphia, confirmed the observation that, if neighboring tissues were left undisturbed, the entire division of the tendon might not have the slightest immediate effect on the ocular movements. The graduation of the effect is here secured by graduation of the incision of surrounding tissue, not by a partial division of the tendon itself.

Dr. O. D. Pomeroy, of New York, felt that he was unable to tell by inspection whether a tendon was completely divided or not.

Dr. Samuel Theobald, of Baltimore, discussed the question:

IS ASTIGMATISM A FACTOR IN THE CAUSATION OF GLAUCOMA?

He had observed that the direction of the meridians of greatest and least refraction in astigmatism determines in a marked degree the amount of asthenopia and other ill consequences. When the meridian of least refraction is vertical, or nearly so, there is more asthenopia, headache, or likelihood of pathological changes in the eye, than when it is horizontal, or nearly so. The non-asthenopic astigmatic eyes are rarely of this sort. Astigmatism in which the meridian of least refraction approaches the vertical is comparatively uncommon, and it must be regarded as a wider departure from emmetropia than the more common form. Because of the persistent effort on the part of the ciliary muscle to correct it, this variety of astigmatism is more difficult to detect than the commoner form, as the whole of it often cannot be rendered manifest at the first examination, even by the aid of a mydriatic. It was this less common, more troublesome variety of astigmatism, that the writer had, in almost every instance, found associated with glaucoma. Hyperæmia of the ciliary muscle and choroid was a common result of astigmatism, and especially of this form. It would be likely to induce an undue flow of fluid into the vitreous chamber; and if, in such an eye, the anterior drainage apparatus happened to be defective, a glaucomatous condition would be apt to result. Cases of fully developed glaucoma in which this troublesome form of astigmatism was present, and others of astigmatism, mostly of this character, in which glaucoma seemed to be threatening, were related.

Dr. Peter A. Callan, of New York, read a paper on the

TREATMENT OF ULCERS OF THE CORNEA.

Most of the ulcers occurring in young persons and children are really phlyctenules of the cornea; neglect and lid friction causing absorption and the formation of an ulcer. The treatment for these cases is the application of a salve of the yellow oxide of mercury (two to ten per cent.), between the eyelids once daily, with atropine and cocaine if necessary. Tonics, regulated diet, open-air exercise, airy sleeping quarters, coquilles of smoke glass; but no dark rooms or bandages. The ulcers, due to conjunctival inflammations, need no especial treatment, other than that applied to the form of disease causing the trouble. In gonorrhœal ophthalmia, ophthalmia neonatorum, or granular lids, we always redouble our effects when the cornea is likely to become involved, cut the outer canthus, apply leeches or ice-compresses, etc. Especial reference was made to those ulcers occurring without apparent cause, due, however, to some constitutional trouble, malaria, syphilis, etc. The treatment for these is, to find out the constitutional ailment and give the proper remedy; and, locally, to cocainize the eye, and with a piece of absorbent cotton wrapped on a holder, clean the ulcer. Then with another piece of cotton on the holder, having dipped it into a two per cent. solution of silver nitrate, swab the ulcer, trying to leave no part of it untouched with the solution. This may have to be repeated two or three times, in the course of as many days. Bathe the eye with hot water (120° to 130° F.) three times daily, for one-half hour. If much corneal irritation exists, bathe with boric acid solution, use atropia and cocaine after each bathing, and keep the eye bandaged. The point is to get a clean wound, and that is better and more safely done with silver nitrate than by any other

means known to the writer. Besides cleaning the ulcer, the silver stimulates the repair.

Dr. J. O. Tansley, of New York, did not think that cocaine acts at all beneficially in phlyctenular disease. Eserine was of decided benefit.

Dr. H. W. Williams had watched the various methods of treatment in vogue for over forty years. He had learned that even the dusting of calomel caused severe pain. He favored mild applications, and especially liked to use eserine, or, as less likely to cause painful spasm, pilocarpine.

Dr. Carl Koller, of New York, had learned from his teacher, Arlt, that one of the principal indications in corneal ulcer was for the bandage. This was to be applied in different conditions for different reasons; some ulcers would heal under the bandage alone. Any increased secretion was, however, a positive contra-indication to the use of the bandage.

Dr. W. F. Mittendorf, of New York, thought the electro-cautery should be used on sluggish ulcers and on those which are inclined to spread rapidly.

Drs. F. M. Wilson, L. H. Taylor, J. O. Tansley, and H. W. Williams had found antipyrin of great service in relieving the pain of corneal ulcers and other painful affections of the eye.

Dr. P. A. Callan had used the galvano-cautery extensively, it was capable of doing harm as well as good. He had seen it open the anterior chamber when not intended, and increase the size of the cicatrix by the unnecessary destruction of sound tissue. The bandage would do harm to eyes with phlyctenular disease; its use should be confined to cases of ulcer due to constitutional causes.

Afternoon Session.

Dr. Edward Jackson, of Philadelphia, proposed to designate by the name

meridional astigmatism,

one of the defects of the eye now grouped under the name "normal irregular astigmatism," which it was of practical importance to study separately, viz., the variations of refraction in different parts of the same meridian, which cause the refraction of the eye to vary from the centre of the pupil to the margin. He recognized two forms of it: a positive, the more common, and resembling spherical aberration, in which the centre of the pupil was most hyperopic or least myopic, and a negative, in which the centre was the least hyperopic or most myopic. For practical purposes, it was to be recognized, and its amount determined by the shadow-test, with which it caused both an erect and inverted image of the retinal light area to be seen at once, from the neighborhood of the point of reversal. The defect was of practical importance, on account of the uncertainty it sometimes caused in the results of testing for ametropia with test-lenses, on account of the difference in the correcting glass required when the pupil was contracted from that required when it was dilated, and because of its occasional influence on visual acuteness.

the numbering of prisms according to refractive power.

The Committee appointed at the annual meeting to consider this subject, consisting of Drs. Edward Jackson, S. M. Burnett, and H. D. Noyes, made a report recommending the adoption of the following propositions:

1. Prisms ought to be designated by the number of degrees "minimum deviation" they produce.

2. Where intervals of less than one degree are desired, half degrees and quarter degrees should be used.

3. To indicate what degrees of deviation are meant the letter "d" shall be added. Thus "prism 2° d." will indicate a prism that produces a minimum deviation of two degrees.

acute cocaine conjunctivitis.

Dr. W. F. Mittendorf, of New York, thought that undesirable effects, due to its use by persons with an idiosyncrasy toward it, were to be expected with cocaine as with other drugs. He reported three cases, in which its use caused violent acute conjunctivitis, with tense swelling of the lids and profuse acrid muco-purulent discharge. Two of the patients were elderly women, in one of whom there was eczema of the lids, and a return of the conjunctivitis on resuming the use of the drug. The third case was that of a man who had three successive attacks brought on by the instillation of different samples of cocaine.

Dr. John Green, of St. Louis, had observed that eyes intolerant of other mydriatics were similarly affected by cocaine. He had seen great hyperæmia caused by its continued use.

Dr. E. Jackson found that cocaine very frequently caused subsequent hyperæmia, usually culminating three or four hours after its application, and frequently attended with discomfort and smarting. He had seen very serious damage to the cornea from the use of cocaine at short intervals in conjunctivitis; and on that account would never place it in the hands of a patient for the relief of constant or frequently recurring pain.

Dr. W. W. Seely, of Cincinnati, had noticed that when the conjunctiva was liable to be irritated by mydriatics, it was similarly sensitive to the contact of other alkaloidal solutions.

exhibition of apparatus.

Dr. J. Oscroft Tansley exhibited a box with glass sides, with lenses and screens, into which the light of a magic-lantern could be thrown, and the course of the rays made evident by filling the box with smoke. This was for demonstrating the facts of refraction to students.

Dr. Swan M. Burnet, of Washington, exhibited the Javal ophthalmometer, and a disk of lenses for use in testing refraction by the shadow-test. This disk was adjustable for different heights, and could be swung back against the wall, to which it was attached, when not in use.

blepharospasm.

Dr. Carl Koller, of New York, regarded this as a symptom arising from different conditions. Cases might be classed under three heads, viz.: the neurotic, the hysterical, and the reflex. The last class was the one he wished to speak of particularly. The condition was often kept up by a small fissure near one canthus, usually the outer, and resembled the spasm of fissure of the anus. This spasm could be stopped, and the fissure allowed to heal by cutting the muscle, but for the eye this was rarely necessary. It was commonly sufficient to treat the cor-

neal or conjunctival trouble, which was the original cause of the reflex spasm, to cauterize the raw surface of the fissure with blue-stone, giving it a chance to heal under the protection of the coagulum formed, and to apply an ointment of yellow oxide of mercury to the lids. In these cases cocaine gave but little relief, and only when applied in considerable quantities.

CASE OF MONOCULAR NEURO-RETINITIS.

Dr. R. H. Derby, of New York, reported the case. It occurred in a young girl, with a history of syphilis in her father, but no previous manifestation of a taint in herself. It began with a dimness of vision, and central scotoma, quickly followed by optic neuritis. The swelling of the papilla increased until it reached 7 D., and light perception was lost. But under the use of large doses of potassium iodide and mercurial inunctions the swelling was reduced, and vision returned and improved until it reached seven-tenths of the normal.

EXTRACTION OF THE DISLOCATED LENS WITH THE AID OF THE BIDENT.

Dr. Oren D. Pomeroy, of New York, reported five cases, all giving satisfactory results, including fair vision. The bident, devised by the late Dr. C. R. Agnew, seeemd not to have come into general use, although those who had tried it liked it very much. The patient was to be kept face downward until the lens was in the anterior chamber, ether given, and before placing the patient on his back the bident introduced, taking care not to press the lens too firmly against the cornea. The corneal incision was then to be made and the lens extracted with a sharp hook, or lens scoop. The writer recommended the use of the bident, in the extraction of the dislocated lens, as safe and effectual in preventing the return of the lens to the deeper parts of the eye.

Adjourned.

AMERICAN OTOLOGICAL SOCIETY.

Special Meeting, held at Washington, September 18, 1888.

(Specially reported for The Medical News.)

The President, Dr. J. S. Prout, of Brooklyn, called the Society to order and stated that as the meeting was held solely for the consideration of scientific matters, all members of the profession present were invited to seats with the Society and to join in the discussions.

Dr. S. O. Richey, of Washington, read a paper on

THE PRIMARY PHYSIOLOGICAL PURPOSE OF THE MEMBRANA TYMPANI.

From a study of the anatomical development of the ear, from the lower to the higher forms of life, the writer concluded: 1st. The primary purpose of the tympanic membrane is that of protection to the tympanic cavity from the evaporating influence of the air. 2d. Being necessary for the protection of the cavity it is modified into part of a transmitting mechanism, a secondary physiological purpose. 3d. A permanent opening of the membrane may temporarily improve hearing, but is harmful to the ultimate condition of the organ. 4th. The tendency of the membrane to heal is an effort on the part of nature to preserve the function of hearing from the effects of disease, or ill-advised surgical interference.

Dr. Gorham Bacon, of New York, reported a case of

CEREBRAL ABSCESS, FOLLOWING EXTENSIVE NECROSIS OF THE TEMPORAL BONE; OPERATION; DEATH FROM SECONDARY HEMORRHAGE; AUTOPSY.

A man of thirty, with a history of good general health, but a purulent discharge, of two years' standing, from the left ear, was first seen September, 1887. Small polypi and granulations were removed, but it was difficult to keep open a proper channel for drainage, and there was extensive necrosis with the formation of a large sinus. In December there was pain. January 10th, there was left facial paralysis, and at the last of the month an abscess was opened above and back of the ear, which was found to communicate with the sinus leading up and forward from the meatus. A drainage tube was introduced and the track kept washed out with a solution of mercuric bichloride. March 7th, after doing well, he complained of great pain in the forehead and neck, became very restless, with temperature of over 102°, and aphasia so complete that his only response was "Yes, sir." Next day there was a boggy swelling over the left malar bone and eyelids. Dr. R. F. Wier now saw the case. An opening was made over the mastoid, but no trouble was found there. The sinus was then opened, the temporal muscle being divided, exploration with the finger revealed a pulsating tumor toward the base of the brain, which was opened, yielding a half ounce of pus. Next day he was better, but at the end of forty-eight hours grew more stupid. A counter-opening was then made over Broca's convolution. No pus was found, but a drainage tube was introduced and passed through the brain-substance to the other opening. Again his condition improved, but secondary hemorrhage, due to injury of the middle cerebral artery by the introduction of the tube, proved fatal forty-eight hours later.

SUPPURATIVE OTITIS WITH METASTATIC IRIDO-CHOROIDITIS, WITH ABSCESS OF THE NECK.

Dr. O. D. Pomeroy, of New York, reported the case. The patient, a man of fifty, was first seen for iritis with adhesions, which became general; and were followed by pus in the anterior chamber. In spite of an opening through the cornea the pus from the vitreous chamber penetrated the upper part of the sclera and the upper lid. The globe was enucleated. For some months the man had complained of great soreness of the side of the neck with some swelling. After loss of the eye these increased and deep fluctuation was detected. An incision gave exit to four ounces of pus, and at the same time pus was made too well up from the external auditory meatus. After this recovery was rapid. He had a history of suppurative otitis months before, but had believed himself entirely cured of it for some time.

Dr. C H. Burnett, of Philadelphia, read a paper on

CHRONIC PURULENT INFLAMMATION OF THE TYMPANIC ATTIC,

based on notes of the disease, additional to ten cases already published elsewhere. The chief obstacle to cure in these cases is the limited drainage through the membrana flaccida above the short process of the malleus, where the perforation in such cases is usually seated. The drainage is further retarded by the fact that the dis-

ease is in and about the head and body of the malleus and incus, and then acts as a dam to the free outflow of matter. This in turn decomposes, keeps up the disease, and renders the patient liable to intracranial abscess or general pyæmia.

In the treatment the chief considerations, therefore, are cleansing and draining this upper cavity of the tympanum. This is best done by injection, by means of the tympanic syringe, of peroxide of hydrogen, carbolic acid solutions from three per cent. to five per cent., and by enlarging the perforation and exposing the attic, either by scratching off some of the edge of the margo tympanicus, or by excision of the membrana tympani, and removal of the ossicula—*i. e.*, the malleus and the incus.

EXCISION OF THE DRUM-HEAD AND OSSICLES FOR THE CURE OF CHRONIC PURULENT INFLAMMATION OF THE ATTIC OF THE TYMPANUM.

DR. SAMUEL SEXTON, of New York, found most cases of persistent otorrhœa to be of this class. The striking advances in joint surgery, by removal of diseased tissue, antisepsis, and free drainage. had led him to attempt a similar treatment of these cases, which also presented chronic inflammation, bone disease, and very imperfect drainage. In such cases the best results by other modes of treatment left the tympanum greatly altered, the hearing very imperfect, the discharge constantly liable to recur, and if, as was very likely, obstructed, to cause painful inflammation with danger of extension toward the brain. An experience of three years convinced him that much was to be hoped from excision, both as to permanent relief and safety and improvement of hearing.

THE EMPLOYMENT OF BORIC ACID, IN SOLUTION, IN THE TREATMENT OF OTITIS MEDIA SUPPURATIVA.

DR. SAMUEL THEOBALD, of Baltimore, stated that in the ordinary cases of chronic suppurativa otitis media, in which there is usually extensive destruction of the drum-head, he uses boric acid, in powder, applying it by means of insufflation; but in acute cases, and in chronic cases in which the destruction of the drum-head is not extensive, and in which a closure of the perforation may be anticipated, he prefers to use a saturated solution of boric acid. The advantages which he claims for the solution, in such cases, are, that the healing of the perforation in the drum-head is more certain to be brought about when it is used than when the powder is employed, since the latter, by too suddenly drying the ear, and also by its mechanical action, frequently prevents the restoration of the membrane; that in acute cases it is safer, as it cannot obstruct the free escape of discharge from the middle ear, as the powder sometimes does; and that it can be applied more effectually than the powder can by unskilled hands. In his own practice no serious consequences had ever resulted from the application of boric acid powder to the ear; but reference was made to the three fatal cases of suppurative inflammation of the middle ear reported by Dr. Gruening, in which the fatal result was attributed to the introduction, in two of the cases, by packing, in the other by insufflation, of boric acid powder into the auditory canal. The strength of the solution which he commonly employed is fifteen grains to the ounce. If the discharge is profuse, the ear is syringed with this three times a day, and less frequently as the otorrhœa declines. In office practice it is more convenient, after having cleansed the ear by means of the syringe or cotton holder and the Politzer bag, to instil the boric acid solution (saturated) with a pipette.

NASAL DIFFICULTIES IN EAR DISEASE.

DR. J. O. TANSLEY, of New York, said that he had for years recognized the intimate connection between nasal and ear diseases. The latter are caused by partial or complete occlusion of one or both nostrils by hypertrophies, deviated septum, etc., which prevent the expulsion of abnormal secretions and the desiccating effect of the air passing over the normal mucous membrane. Hypertrophied tissue on the lower posterior aspect of the inferior turbinated bone may cause accumulation, although the passages are quite sufficient for purposes of respiration. Hypertrophies pressing directly on and irritating or occluding the Eustachian tubes, are certain to cause ear disease; and bands of tissue, apparently cicatricial, in the pharynx, must be divided. Hypertrophy of the posterior wall of the pharynx sometimes causes complete occlusion. Atrophic rhinitis, with patulous Eustachian tubes, or simple secretive catarrhs may cause trouble. The indications for treatment were: 1. To combat the blood dyscrasia or catarrhal diathesis. 2. To cure the catarrhally inflamed mucous membrane, and restore its normal function. 3. To free the nasal and naso-pharyngeal cavities from all obstruction and encourage nasal breathing. To remove hypertrophies he commonly employed the snare, avoiding the galvanocautery, in these cases, for fear of starting up a suppurative process in the middle ear, which was commonly irritated and full of secretion. In the after-treatment recourse was had to sprays, mild solutions of silver nitrate, and tannin and glycerin.

DR. CLARENCE J. BLAKE, of Boston, then read a paper on

THE INFLUENCE OF THE USE OF THE TELEPHONE ON HEARING POWER.

This influence must be injurious because the extremely low intensity, as demonstrated by experiment, of the sounds to be caught from the telephone compelled a strain of the ear which soon fatigued it and made it especially liable to injury by the accidental sounds of comparatively high intensity, which were constantly liable to be heard.

DR. C. H. BURNETT said he had seen several patients who believed that the continued use of the telephone had impaired their hearing.

DR. O. D. POMEROY gave the case of a patient who said the use of the telephone fatigued her very much, and she thought had made her decidedly worse.

CORRESPONDENCE.

CONGRESS NOTES.

(*From our Special Correspondent.*)

THE financial showing of the dinner to the guests of the recent Medical Congress held in Washington in September, as set forth in the printed circular from the Chairman of the Committee of Arrangements, is very satisfactory and must be a cause of congratulation to those who participated. There were one hundred and forty-one

actual subscribers, who paid in full $26, and thirty-one guests. The actual cost of the dinner to each subscriber was $12.23, leaving a surplus Dinner Fund of $1095.80, thus allowing a rebate to each subscriber of $7.77. This surplus fund will be held and invested, with the consent of the subscribers, to be put to a similar use in 1891. The Chairman also states that the expenses incurred by the Committee have been paid in full without any demand on the treasury of the Congress.

As Washington is to be the triennial meeting place for the Congress, future Committees of Arrangements would do well to look carefully after the comforts of their visitors regarding two important adjuncts, viz., hotel accommodations and proper treatment by the railroads. With regard to the hotel accomodations there seems to have been considerable unfavorable criticism. Washington is peculiarly situated in this respect; it has become a show place, and is filled periodically with excursionists; these excursionists are billeted, as it were, upon the hotels—that is, with their excursion tickets they frequently receive hotel coupons, receiving accommodations at a reduced rate. This has demoralized all the large hotels, for these excursionists do not demand a high order of table or service, and the hotels take rank accordingly with those, for example, at many of our seaside resorts—which are shunned by the experienced visitor. The way to enjoy Washington, with due regard to digestion and creature comforts, is to put up at some of the smaller hotels, which are more like flats and receive transients, or are conducted upon the European plan, and to take one's meals either at the clubs or at some of the restaurants. Washington will be found to provide both, and quite satisfactorily. After all, the man who lives in another city with his home comforts around him, had better try his own hotels under similar circumstances, and see if by that means he cannot take off a little of the sharp edge of criticism. Those who have gone from Washington to some of its neighboring cities to medical and scientific congresses, have also their side of the story to tell.

With regard to the accommodation from railroads in reduced fare, etc., decided measures should be taken to correct evils which have grown up, from a want of good faith somewhere. Take, for instance, the experience of the Committee of Arrangements at this Congress. Application upon application was made to the Chairman for his signature to certificates of attendance upon the Congress, from people who made no pretence of being medical men or of having the slightest interest in the Congress. They were informed by agents that they could procure these tickets during the session of the Congress, and return at reduced rate by obtaining this signature. Consequently they were thrown out of their chances and had to pay full rates both ways, when they might have saved a few dollars by procuring a round trip ticket. These facts tell their own story, that in the past such an evasion of the rules was an understood thing, and also explain, while they do not mitigate or excuse, the action of some companies in refusing, or making the obtaining of rebates so troublesome and vexatious to members, as to cause much indignation and feeling against these companies. It is time that a decided expression of opinion should be had in this matter, and future Committees of Arrangements for similar purposes should protect themselves and their visitors against annoyances and mortification. The rebates, after all, are in many cases but a small matter; the visitor will take advantage of them, as a matter of course, if offered to him, but he would rather pay the price twice over than to be subjected to such annoyances and looked upon with suspicion. Let there be a thorough, honest understanding, or let the whole matter alone.

Washington, October 1, 1888.

STERILIZED MILK.

To the Editor of The Medical News,

Sir: In The Medical News of July 7th, page 12, Dr. Baruch states that milk steamed as advised by Dr. Rotch and myself is not sterile, and that the test taken by us was the failure of the milk to turn sour. Deeming the subject of a pure milk supply one of great importance, not only to infants, but also to adults, both in prophylaxis and treatment, I desire to make a few remarks on Dr. Baruch's treatment.

In the first place, neither Rotch (*Archiv. Pediat.*, August, 1887, p. 4) nor Jeffries (*Amer. Journ. of Med. Sciences*, May, 1888, p. 496) claimed that one steaming made milk sterile; it may, or may not, as I proved. Owing, however, to the very small number of spores capable of resisting a temperature of 212° F. occurring in milk as delivered, the number of bacteria in steamed milk is practically nil. From such milk the child will obtain fewer bacteria than from the mother's nipple.

The objection that this milk may not be absolutely sterile may, therefore, in a question of practice, not theory, be discarded as a bogle. So long as babes continue to put everything into their mouths and suck their toes, no mother need lay awake from fear of the few bacteria her fond child has taken in steamed milk.

In order to keep the milk for a long time, it must be steamed on three successive days. This does sterilize it, as experience in bacteriological laboratories, the world over, shows. It is an easily prepared and almost universal fluid medium for the growth of pure cultures. Any complicated apparatus to super-heat milk is unnecessary, expensive, impracticable; to place it, contained in an ordinary flask, in a cooking steamer for fifteen or twenty minutes is neither one of the three.

In closing, I would remark that if Dr. Baruch will reread my article he will find that I did not take the fact that such milk failed to turn sour as evidence of sterility. On the contrary, I made a count and reported at length the number of bacteria found by the plate method *after one steaming*.

Were the question a personal one I should have passed it by, but believing that thousands of lives can be saved, and many thousand cases of disease avoided by steaming the milk as advised, it seems to be simply duty to defend the method against careless stricture, while standing ready to try to remove any solid objections that may be raised.

Yours, etc.,

J. Amory Jeffries.

91 Newbury Street, Boston.

GALL-STONES IN A GIRL FIFTEEN YEARS OLD.

To the Editor of The Medical News,

Sir: On the 26th of September, 1888, I made a post-mortem examination of a mulatto girl, fifteen years old, who had died of typhoid fever.

I found in the gall-bladder forty-two gall-stones, about the size of small peas, the surface a pale yellow, of a greasy feel, and with irregular, club-shaped prominences; the body of the stone brownish. The gall-bladder was normal. No history of biliary colic.

Gall-stones at so early an age are so rare that this case seems to me worthy of record.

D. S. Lamb, M.D.

Army Medical Museum,
Washington, D. C.

NEWS ITEMS.

Disinfecting Letters.—The terrible scourge of yellow fever which is making such havoc in Jacksonville, Florida, is not from present appearances likely to spread outside of the district to which it is now confined. Rigid quarantine provisions are enforced in all directions around the unfortunate city, and personal access to the outside world is practically impossible to its inhabitants. Neither is there cause to fear infection being communicated through the mail. Letters from the stricken section are fumigated in a novel way, so that there is little or no chance for the disease being brought northward. The letters are all stopped when they reach the quarantine lines. Each letter is put under a machine with a long arm attached, and this is provided with little teeth punctured at the ends. A powder that is used for fumigating purposes is forced through the arm and down through the teeth. The arm comes down on each letter, and while the little teeth are perforating the letter the powder is blown in between the sheets, disinfecting the letter thoroughly. Then it is forwarded to the person to whom it is addressed. Some complaint has been heard of damage to letters, but so long as they remain legible a little disfigurement should be welcome as a proof of protection.—*American Analyst*, September 15, 1888.

NOTES AND QUERIES.

"CEREBRAL LOCALIZATION."

To the Editor of The Medical News,

Sir: One of the speakers on "Cerebral Localization," before the late Congress, fell into an error that implies want of correct information, and might, indeed, be considered an inhospitable act.

In the course of the discussion in question, it was said that we owe to Putnam the discovery of the fact that irritation of the subjacent white matter causes the same results as when the gray motor areas above are excited. Now, it was Dr. J. Burdon-Sanderson who announced this in a communication to the Royal Society, a few weeks after Dr. Ferrier's paper had appeared. This was in 1874. Very truly,

Roberts Bartholow, M.D.

Philadelphia, September, 1888.

TASTELESS PREPARATION OF IRON.

To the Editor of The Medical News,

Sir: Will you kindly oblige an old subscriber by giving me a description of, or a formula for Creuse's tasteless preparation of iron, recommended by Bartholow (see page 135, *Materia Medica and Therapeutics*, ed. of 1888) as the most convenient form for the administration of the tincture of the chloride.

I have been unable to find any information on this point from sources at my command, and an answer will be thankfully appreciated. Respectfully yours,

O. D. Doane, M.D.

The Dalles, Oregon, Sept. 10, 1888.

[Creuse sought to remove the styptic and otherwise disagreeable taste of chalybeates, by the addition of an alkaline citrate. The tincture of the chloride lends itself best to this treatment. To one ounce of the tincture add about two hundred grains of citrate of potassium.—Ed.]

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 25 TO OCTOBER 1, 1888.

By direction of the President, George M. Sternberg, *Major and Surgeon* (U. S. Army), will proceed to Decatur, Alabama, and to such other points in the infected districts of the Southern States as he may deem necessary, to continue his scientific investigations of yellow fever.—Par. 8, *S. O. 224, A. G. O., Washington*, September 26, 1888.

Under authority from Headquarters of the Army, A. G. O., dated September 22, 1888, Major Charles B. Throckmorton, and Batteries "K" and "M," Second Artillery, comprising the garrison of Jackson Barracks, New Orleans, La., will proceed at once, by sea, to New York Harbor, and, upon arrival there, will take post at Fort Wadsworth, New York Harbor. A small guard of enlisted men will be left at Jackson Barracks. *Major and Surgeon* John W. Williams will accompany the troops to New York Harbor. *Major and Surgeon* Harvey E. Brown will remain at Jackson Barracks.—Par. 12, *S. O. 202, Headquarters Division of the Atlantic, Governor's Island, New York City*, September 26, 1888.

White, Robert H. *Major and Surgeon* (U. S. Army).—Is granted leave of absence for one month, with permission to apply for an extension of one month.—Par. 7, *S. O. 199, Headquarters Division of the Atlantic, Governor's Island, New York City*, September 22, 1888.

By direction of the Acting Secretary of War, leave of absence for six months, on surgeon's certificate of disability, with permission to leave the Division of the Missouri, is granted Ezra Woodruff, *Captain and Assistant Surgeon*.—Par. 5, *S. O. 223, A. G. O.*, September 25, 1888.

By direction of the Acting Secretary of War, Washington Matthews, *Captain and Assistant Surgeon*, is detailed as a member of the Army Medical Examining Board appointed to meet in New York City, October 1, 1888, by Special Orders, No. 203, September 1, 1888, from this office, vice George M. Sternberg, Major and Surgeon, hereby relieved from his detail as a member of the Board.—Par. 3, *S. O. 224, A. G. O., Washington*, September 26, 1888.

Upon the recommendation of Captain and Assistant Surgeon Daniel Weisel, Senior Medical Officer, Camp of Instruction of the Fifth Cavalry, J. Van R. Hoff, *Captain and Assistant Surgeon*, is assigned in charge of the active operations of the Hospital Corps in that camp.—Par. 2, *S. O. 121, Headquarters Department of the Missouri, Fort Leavenworth, Kansas*, September 22, 1888.

By direction of the Acting Secretary of War, leave of absence, to include May 3, 1889, is granted George F. Wilson, *Captain and Assistant Surgeon*.—Par. 14, *S. O. 223, A. G. O.*, September 25, 1888.

The resignation of George F. Wilson, *Captain and Assistant Surgeon*, has been accepted by the President, to take effect May 31, 1889.—Par. 15, *S. O. 223, A. G. O*, September 25, 1888.

By direction of the Acting Secretary of War, the following named officers of the Medical Department will report, in person, on October 9, 1888, to the President of the Army Medical Examining Board, Army Building, New York City, for examination for promotion: Benjamin Munday, *Captain and Assistant Surgeon*; William O. Owen, Jr., *Captain and Assistant Surgeon*. Upon the completion of their examination, to rejoin their stations.—Par. 15, *S. O. 225, A. G. O., Washington*, September 27, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 29, 1888.

Hudson, Adrian, *Medical Inspector*.—Ordered for examination, preliminary to promotion, to Medical Director.

Bates, Newton L., *Medical Inspector*.—Ordered for examination, preliminary to promotion, to Medical Director.

Cooke, George H., *Surgeon*.—Ordered for examination preliminary for promotion as Medical Inspector.

Bradley, Michael, *Medical Inspector*.—Ordered as a member of the Naval Examining Board.

Wells, Henry M., *Medical Inspector*.—Relieved from duty as a member of the Naval Examining Board.

Simons, Manly H., *Surgeon*.—Ordered to Widows' Island Naval Hospital.

Heffenger, A. C., *Passed Assistant Surgeon*.—Detached from Naval Hospital, Widows' Island, and wait orders.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, OCTOBER 13, 1888. NO. 15.

ORIGINAL ARTICLES.

THE RELATIVE IMPORTANCE OF DIFFERENT CLIMATIC ELEMENTS IN THE TREATMENT OF PHTHISIS.[1]

BY EDWARD T. BRUEN, M D.,
ASSISTANT PROFESSOR OF PHYSICAL DIAGNOSIS IN THE UNIVERSITY OF PENNSYLVANIA.

THERE have always been popular descriptions of climate from the pens of travellers and valetudinarians, which have been more or less impartial, as the writers were more or less interested in the development of a special resort. In recent years the study of physical geography has widened our knowledge of the various climates of the globe, but exact statistics of the effect of climate on the physiology of the thoracic organs are still wanting, as well as a knowledge of the effect of climate upon bacterial organisms. Moreover, in our own land changes have been induced by the settlement of the country, so that it is still true that a definite scientific idea of the real healing property possessed by climate is yet to be formulated, and it is difficult to settle positively the relative importance of the different meteorological elements.

In this article I shall only consider the effect of different climatic elements upon a single disease. From the standpoint of the clinician the relative advantages of different climatic elements in the treatment of phthisis depend upon the view which may be adopted of the etiology of the disease.

Experimental evidence, by inoculation of tubercular material, seems to afford cumulative testimony as to the specific character of phthisis, viz., that tuberculosis is an infectious disease, and that the tubercle bacilli are the infecting agents; but a careful analysis of the history of tuberculosis indicates that both bacillary infection and unhygienic surroundings are necessary to bring about the disease.

A glance at the modes of tubercular infection may afford a hint as to the relative value of climate in the management of impending phthisis. Many French[2] and German observers have shown that the majority of pleurisies, which are not traumatic, pyæmic, or rheumatic, are tubercular. Bacilli can enter a part only by means of the canals or ducts which penetrate it, or by the blood or lymphatic vessels. Infection of the individual can occur by means of the respiratory system, the alimentary canal, the genito-urinary tract, and even the outer epithelial surface. It has been further shown that bacilli may enter the body by means of the alimentary canal, without causing any lesion at the place of entrance; for example, in the mesenteric phthisis of children. Baumgarten has even shown that the bacilli may be directly inherited, and transmitted from parent to offspring.

This variety in the mode of infection indicates that a broad view should be taken of the influence of climate upon health, and justifies the statement that the relative importance of climatic elements for those predisposed to phthisis resides in the selection of that climate which, in each individual case, tends most toward fortifying the physiological structure; and, therefore, antagonizes the invasion and progress of the disease. An additional support to this view can be drawn from the observations of Metzchinkoff, who has seen the lymph cells of the frog englobe and destroy anthrax bacilli. Wyssokowitsche, also, found the microbes, which he injected into the circulation of animals, taken up by the endothelial cells lining the capillaries of various organs, where they finally became destroyed. Watson Cheyne, in a review of some of his recent experiments, after describing the manner in which large quantities of putrefactive and non-pathogenic bacteria were destroyed when injected into the blood of rabbits, adds, "but this does not occur if the animal is in a bad state of health."

It has been demonstrated that the extent and character of the lesions produced in tuberculosis are due to the number of bacilli which enter a part, and to the manner in which they enter.

There are three characteristic forms of tuberculosis: first, acute, miliary tuberculosis, which is an acute infectious disease, due to general blood infection by large numbers of bacilli entering the blood current. Second, disseminated tuberculosis, in which there is also general infection of the blood; but the bacilli which enter are fewer, or they enter at intervals. Third, the tuberculous pneumonia, affecting larger or smaller portions of the lung parenchyma and due to the aspiration of large numbers of bacilli furnished by a focus of the disease, usually a cavity in the lung.

[1] Read at the opening of a discussion in the Section for Climatology at the meeting of the Congress of American Physicians and Surgeons, at Washington, D. C., September 19, 1888.

[2] Especially Kelch and Vaillard: Bulletins de la Société Médicale des Hôpiteaux de Paris, 83.

In the acute forms of tuberculosis, climatic treatment is certainly unavailing; in the tubercular pneumonias the same is largely true; but in the forms of disseminated tuberculosis, which are more slowly developed, and particularly those in which there is a tendency to the formation of fibrous tissue, the climatic treatment is proportionately valuable. The climate is yet to be discovered which will annihilate the bacillus of tuberculosis, but by appropriate climatic and hygienic treatment we may not only prevent the development of phthisis in those predisposed to the disease, but also strengthen the constitution so that further tubercular invasion may be retarded, and the phthisical process rendered latent. What, then, is the relative importance of different climatic elements in accomplishing this result?

Cullen has written that the air of any place is better for the patient than that in which he grew ill. When one becomes a valetudinarian the habits of previous living are reversed, active out-door exercise is usually substituted for sedentary in-door life; and, in addition, the habits are changed in connection with a salubrious climate.

A striking illustration of the influence of environment is found in Mathews' paper, read before the American Climatological Association, on "Consumption among the Indians." He has shown that the death-rate among the Indians on the reservation, and in those residing in the most highly civilized parts of the United States, is much increased under the influence of civilization—*i. e.*, under the compulsory endeavor to accustom themselves to the food and the habits of an alien and more advanced race, and that climate is no calculable factor in this increase.

A favorable climatic environment to increase general vigor may vary in accordance with the individual idiosyncrasy; with some a cool or cold climate is naturally preferable to warm or hot; some improve in rarefied air, others at the sea level, while it is generally conceded that a dry is preferable to a moist, a sunshiny to a cloudy, climate. Variability is of less essential importance, but is an element of climate which must be considered in individual cases; as, for instance, in those who possess feeble circulations, and who are unable to take much exercise. Again, equability of climate may, on the same grounds, become a factor to be considered from the standpoint of the individual case.

An inquiry instituted in Saxony, at the expense of the government, proved that elevation had nothing to do with immunity from phthisis, very high localities in the Ertz and Reisengebirge exhibiting a large percentage of phthisis as soon as the industrial arts, such as mining and the manufacture of china, were prosecuted there; while, on the other hand, the percentage in the low lands was diminished where the people were engaged in agriculture and cattle raising.

At the period of the discovery of the Sandwich Islands, in 1778, the Hawaians, according to Surgeon-General Wood,[1] were physically and mentally superior to all the other Malayo-Polynesian races. Climate, soil, and general environment having remained the same, we must account by a change in the habits of life, for the astonishing increase of disease, and the deterioration produced by a century of civilization in the Hawaian race.

Fothergill has shown that the effect of town life is to produce a distinct retrogression to a smaller, darker, precocious race of less potentiality than the rustic portion of the community.

Dr. Loomis has claimed for the air of pine forests a valuable antiseptic and corrective property, diminishing putrefactive changes in the lungs, and the multiplication of bacteria. But the influence of life amidst pine forests is, after all, rather to enhance general vigor by the effect of a suitable environment with outdoor life, and not directly by destroying the specific poison of the disease.

Ozone has always been thought to be present in large amounts in the air of pine forests, on the ocean, and at high altitudes. It is said to have the property of chemically purifying the atmosphere by combining with the products of decomposition. Again, Schmidt, of Dorpat, is of the opinion that all processes of oxidation within the organism are accomplished not by oxygen, but by ozone; oxygen outside the body being scarcely able at the temperature of animal heat to bring about the oxidation of highly organized bodies. As we cannot definitely determine the amount of ozone in an atmosphere, it becomes an attribute of climate of uncertain value. Ocean voyages are relatively important chiefly from the character of the cases which receive benefit from them. Ocean climate insures great purity of the atmosphere, and probably ozone in considerable amount, and the regularity of life may prove quieting to the nervous system. The ocean voyage is relatively superior to the seashore because the dampness of the soil at the seashore is avoided. It is also settled that sea air has a beneficial influence upon the catarrhal processes of subacute or chronic bronchitis For phthisical subjects the value of an ocean voyage lies in the bracing influence it exerts on the nutrition of those predisposed to the disease, and is favorable in some forms of fibroid phthisis in which bronchial disorders are prominent features.

It would seem, therefore, that the consideration of the etiology of phthisis would indicate that climate is of value to the individual predisposed to phthisis, not by a single or specific quality of the air, or by any definite combination of meteorological conditions. It is neither more nor less than pure air, uncontaminated by miasm or organic or inorganic

[1] Trans. Section 16, Ninth International Medical Congress

substances. The chief purpose of climatic change is to increase cellular resistive power.

In phthisical subjects, suitable for climate cure, the relative value of different climatic elements may be determined upon simple lines, viz.: that climate most conducive to individual health under ordinary circumstances, a climate in which, according to individual preferences, fresh air, sunshine, and an out-of-door life may be freely enjoyed, and, in consequence, respiration, digestion, and hæmatosis proceed with the greatest activity.

Again, an answer to the question of the relative importance of different climatic elements in the treatment of phthisis may be drawn from a study of the climatic conditions most commonly demanded by physicians.

Dryness of soil is of the first importance, or such porosity of the same as shall practically insure it. If the soil becomes too dry the continual absence of rain may prove a disadvantage, because the air may be filled with dust, from which it is mechanically cleansed by rain or snow carrying downward to the earth not only the solid particles suspended in the air, but also carbonic acid and ammonia. Rain is not an evil, unless it is associated with conditions of soil which favor continued dampness; still a locality subject to long-continued rains is necessarily not so climatic, since high relative humidity of the atmosphere is very undesirable.

The relative humidity of the atmosphere exercises a powerful influence upon animal and vegetable life. It is well known that inhabitants of a dry climate are, as a rule, thin and sallow, while those living in moist insular countries have well-developed figures and fresh, ruddy complexions; so that a very dry atmosphere need not be considered of high relative value in persons simply predisposed to phthisis. It is otherwise with those already infected with phthisis, but even for these the question of atmospheric humidity is relatively less important than porosity of the soil; indeed, at moderate altitudes porosity of soil includes dryness of the air. The maximum dryness of the air is commonly secured at high altitudes, but since many cannot endure the rarefied air, this climatic element must often be sought at moderate elevations, at which porosity of the soil secures dryness of the air, and again, dryness of air must not be secured at the expense of a dusty atmosphere. A dry atmosphere favors inspissation of the blood by increasing transudation of the skin, and will promote inspissation of the liquid elements of catarrhal inflammation, but, as Welch and others have shown, catarrhal inflammation is secondary to microbic infection rather than the reverse.

To those who believe in the specific nature of phthisis the researches of Metzchinkoff on the struggle of the cells of the organism against invading microbes, show that dryness is chiefly of importance as an element of those climates which enhance general vigor. He points out that there are cases in which the organism is invaded by microbes without any resistance being made by the phagocytes or cells which possess the property of absorbing and digesting microbes. Atmospheric dryness is probably unfavorable to the reproduction of the bacilli, but until definite statistics are forthcoming we commonly ascribe a high relative value to a dry atmosphere from its effect in stimulating the general health.

Meteorology has shown that pulmonary phthisis and temperature have nothing in common. Pulmonary consumption, geographically considered, is neither favored by a low temperature nor prevented or cured by a high one. Equability of climate is practically unattainable, and statistics of the health resorts which send us the greatest proportion of benefited cases are those in which great diurnal variation occurs. Many regions in which the climate is equable are notoriously undesirable, as, for instance, the western coast of England, the Netherlands, Norway, the Equator, and the poles.

Equability of temperature only deserves consideration indirectly—that is to say, in connection with individual cases. When changes of temperature are very sudden or very great, a certain amount of vigor is necessary to react properly to them; persons with feeble circulations or advanced pulmonary disease will, therefore, find it necessary to consider equability.

Lastly, rarefied air versus sea-level pressure has been considered as a climatic element of high importance. This conclusion has been reached chiefly by observing that consumption in all latitudes diminishes with altitude. Physicians now are universally ready to recognize that in mountainous regions the air is rarefied and the respiratory activity increased. The air is also usually dry, and Pasteur has proven that organic substances are more numerous near the earth's surface than in the higher strata of the atmosphere, and they continue to diminish the higher we ascend, disappearing entirely when we reach certain heights in the mountains. It has, however, been shown conclusively that the unquestionable good results accruing to consumptives, from a residence in the mountains, are due to other causes than altitude. In elevated regions consumption can be developed the moment the inhabitants adopt an indoor life, associated with the confinement incident to the trades; while in the lowlands outdoor life diminishes the percentage of consumption.

Fifteen years ago MacCormac, an English physician, claimed that pulmonary consumption was an artificial product developed by inspiring air which had previously been expired, "re-breathed" as he expressed it. He went so far as to assert that there would be no pulmonary consumption if everyone would sleep with open doors and windows. Statis-

tics, I believe, will ultimately show that the mere mechanical physiological influences of rarefied air are unimportant in the majority of cases, and we now know that, in some instances, high altitudes prove positively injurious.

The greatest benefit can be secured in the locality which possesses the purest air, a large percentage of ozone, the best drained soil, atmospheric dryness without dust, and the greatest proportion of sunshiny days, and especially where these results are attainable at a moderate altitude. This latter feature should be considered important, because should recovery occur it may be possible to return to ordinary elevations with safety to health; for while statistical proof is wanting it is pretty well established that when an individual becomes acclimated to the rarefied air of high altitudes it is dangerous to health to return to ordinary elevations.

Finally, the position already taken in regard to the relative importance of climatic elements is supported by the character of the cases deemed suitable for climatic treatment. In selecting these cases the question of the special physiological effects of altitudes should be first considered. These specific advantages seem to be mechanical, and are chiefly those which result from the rarefied atmosphere. For example, it has been shown by Dr. Platt that the Peruvians at an elevation of seven thousand to fifteen thousand feet possess short compact bodies and greatly hypertrophied lungs. Residence at high altitudes causes enlargement of the thorax, hypertrophy of the healthy lung tissue, and the development of pulmonary emphysema around tubercular lesions.

High altitudes are generally recommended for those cases free from pyrexia and all acute symptoms; in cases of hereditary or family tubercular predisposition; or in cases which manifest phthisis by early hæmoptysis; and in instances of imperfect thoracic and pulmonary development, in chronic tubercular pneumonia without bronchiectasis, and with tendency to formation of fibroid tissue; in chronic pleurisy in which the lung does not expand after removal of the fluid, and in spasmodic asthma without emphysema.

The climate of altitudes is acknowledged to be injurious to those who possess insufficient lung tissue to carry on respiration adequately in a rarefied atmosphere, such as cases of phthisis with double cavities, with or without pyrexia, and in those cases of tubercular infiltration in which at low levels the pulmonary area scarcely suffices for respiratory purposes. It is thought that in suitable cases evidence of improvement must be drawn from a diminished pulse and respiration rate, together with gain in body-weight, color, and muscular power; but these physical signs are not peculiar to improvement at elevated regions.

High altitudes are then peculiarly undesirable for mechanical reasons, and consequently for special types of disease such as emphysema, chronic bronchitis with bronchiectasis, and in diseases of the heart and great vessels. High altitudes are thought to be unsuitable for cases in which there is great irritability of the nervous system, since the dry air usually found in such latitudes diminishes the water in the blood, and acts as a powerful stimulant to the nervous system, increasing its functional activity and causing excitement and sleeplessness. High altitudes necessarily include variability, consequently are unsuitable for those persons advanced in years or in those younger persons who are too feeble to take exercise.

There are, therefore, a few mechanical effects peculiar to the atmosphere of elevated regions which render the climate of altitudes relatively objectionable in the management of certain cases, but, on the other hand, excluding these, the relative importance of altitude indirectly antagonizing tubercular phthisis has not been shown, and the good results attained in elevated regions for the class of cases already mentioned can be gained at any point possessing dry soil, pure dry air, and sunshine, which will invite exercise and in turn promote hæmatosis and invigorate the general system.

Once more, in selecting a climate the preference of a patient for a warm rather than a cold climate, should be consulted, and in the decision the only essential elements seem to be those already grouped, viz., dry air, porous soil, and abundant sunshine, for in almost all cases the profit to the individual is indirect from the effect of out-door life. In selecting a climate its relative advantages should be set over against the disadvantages of localities not only meterological, but also those relating to the patient's personal comfort and convenience, and as the requirements of a typical climate, though simple, are not easily secured at any one point, localities should also be selected in some measure with a view to the least expense and inconvenience of the individual.

THE COMPARATIVE IMPORTANCE OF DIFFERENT CLIMATIC ATTRIBUTES IN THE TREATMENT OF PULMONARY CONSUMPTION.[1]

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In offering my views upon this subject, I shall not presume, even were it possible in the limited time allowed, to give statistical evidence of the results of my own experience in the climatic treatment of phthisis. From the protracted nature of the disease satisfactory data can be given only after

[1] Read at the meeting of the American Climatological Association, Washington, September 19, 1888.

years of close observation of cases, and it is more with the hope of exciting discussion which shall lead to more thorough investigation of this most important subject than of giving new or valuable facts, that I have prepared this paper.

There can be no physician, I imagine, even of many years' experience, who does not feel, at times, a sense of helplessness when asked if a change of climate will be beneficial to his patient, and, if so, what climate shall be chosen. It is then that our lack of proper knowledge on the subject comes over us; it is then that the apparent difference of view, held by equally eminent authorities, makes us feel that the science of climatology is in its infancy only, and that from its very complexity it must have a slow growth.

In taking a broad survey of the different methods of climatic treatment in the last half century, we can say that, regardless of possible differences of detail in treatment of incipient phthisis, the modern method is strongly in favor of selecting cool or even cold invigorating climates by which the general system may be assisted in its efforts to resist disease, as opposed to the former custom of selecting the warmer, more debilitating regions with their generally depressing effects. Even when taking into consideration the greater attention paid now to hygienic matters, which has its favorable effect, yet the results of the modern method show it to be a decided step, in the right direction, for a large class of cases.

Let us now ask: "What in the opinion of eminent authorities are the most important attributes of a climate for the treatment of incipient phthisis?

At the outset we must pause, being brought face to face with the fact that in all tabulations of results, the word phthisis covers a variety of pulmonary affections, and herein lies one of the chief difficulties of our coming to accurate and definite conclusions. By accepting the presence of this well-nigh insurmountable difficulty, and keeping it in mind, we can, nevertheless, draw general conclusions with safety, and judge if the number grows less of those who die from wasting pulmonary diseases, be they of tubercular nature or otherwise, and, if so, what are the reasons of the decrease?

In Dr. Denison's admirable paper of last year, which gives us the key-note of the discussion to-day, he places at the head of the list the quality of *dryness* as opposed to *moisture*. Under this head we may include both dryness of the air and of the soil, and without discussing the question as to how these are largely dependent upon each other, it will be sufficient to say that the researches and opinions of many authorities justify Dr. Denison in placing this attribute at the head of the list.

The investigations of my father, about thirty years ago, as to the cause of consumption in Massachusetts, and shortly afterward, of Buchanan and Simon, in England, point most strongly to soil moisture as a cause of the disease, and, furthermore, show that removal from a damp soil to a dry one has frequently been followed by arrest of the disease. More recent researches in other regions (for instance, those of Dr. Pepper in Pennsylvania two or more years ago) have lead to the same result. Jaccoud, Hermann Weber, and others quoted by them, while they lay the greatest stress upon *altitude*, yet speak of the dryness of the air which accompanies a rarefied atmosphere and the rapid drainage of the soil due to elevation as most important factors in the cure of consumption.

Jaccoud, in his enthusiasm for *altitude* as the most important factor in the treatment of incipient phthisis, lays much stress upon the mechanical effect of expansion, which residence in a rarefied atmosphere has, upon the human chest, and in this view he is supported by Hermann Weber, C.B.J., and C. Theodore Williams, Denison, Solly, and others, and from their observations there is little reason to doubt that the frequent and deep inspirations made by patients upon arriving in mountain regions, to obtain the requisite amount of oxygen from the rarefied air, tend to expand the chest and to dilate the collapsed or obstructed alveoli of a phthisical lung. The full-chested appearance of children in the mountainous regions of Colorado, as noticed by the two authors last named, goes to prove this fact.[1]

Apart from the mechanical effect upon the chest, authorities very generally agree that in altitudes, properly selected, varying from 1500 to 8000 or 10,000 feet, we find a combination of attributes favorable to the cure of incipient phthisis, and in addition to the one already mentioned, viz., *dryness* of the atmosphere and soil, we have the advantage of a cool or cold bracing temperature, clearness and purity of the atmosphere, with a large percentage of sunshine.

While fully acknowledging the weight of the opinions of those who regard altitude as *one* of the most, if not *the* most important element in the climatic treatment of phthisis, yet I must confess to being as yet unwilling to accept this without reservations. It is doubtless true that we find, as Dr. Denison says, at certain high altitudes a greater number of what we now consider the most important

[1] That these effects of altitude have a decidedly beneficial influence on the pulmonary condition there is little reason to doubt, even though Jaccoud persists in saying that the rarefaction of the air causes an *anæmia* of the lungs in conjunction with the other viscera, although other eminent authorities maintain that the lungs share with the skin the increased circulation due to removal of atmospheric pressure, which seems the more rational view. (Lubbock's translation of Jaccoud's "Curability and Treatment of Pulmonary Consumption," p. 293.)

attributes combined than in less elevated regions: but I think we must be guarded in accepting this, lest from the result of future investigations we find that we have gone too far in this direction.

With my present conviction that dryness of soil and atmosphere are the most important factors in the climatic treatment of phthisis, I am much struck by the experience of Dr. Geddings, who for many years has studied the climate of Aiken, in South Carolina, and the results of phthisical patients who have been sent there. The town is situated between 500 and 600 feet only above the level of the sea, not high enough to exert any special mechanical influence on the chest by rarefaction of the air (on which Jaccoud lays so much stress), yet the atmosphere and soil are both very dry, and the bracing quality of the air is a marked feature.

From the results which Dr. Geddings has noticed, and from the experience of a few patients with whose histories I am acquainted, I find myself questioning as to how far the element of altitude *per se* is necessary, and whether other regions resembling the position and climate of Aiken are not to be found, where equally favorable results can be expected. In this connection, moreover, the facts spoken of by several authorities must not be lost sight of, viz., that in certain countries of decidedly low altitude there seems to be an entire immunity from phthisis; for instance, the Kirgheez, in Asiatic Russia, who live on vast steppes, one hundred feet below the sea-level, and the inhabitants of the Faroe Islands and of Iceland, living at a very slight elevation, and under the most unfavorable hygienic conditions, are nearly, if not entirely, free from the disease. So far as I know, these countries have never been used as health resorts for phthisical patients, but probably the depressing effects of living in such communities would far outweigh any possible benefit.

As to the attribute of temperature, or, in other words, *coolness* or *coldness*, as opposed to *warmth*, in the climatic treatment of phthisis, there can be little doubt that, in the majority of cases of incipient disease, the former has the more favorable effect. The good effects of a low temperature lie chiefly in its bracing quality, its tendency to cause dryness of the atmosphere, and its unfavorable influence on the growth of the bacillus outside the human body, a fact which, to those who believe in the theories of Koch, is of marked importance. (The contrary is true of warm, moist, relaxing climates.) The importance of clearness and purity of the atmosphere, with the presence of sunshine, is so self-evident that one need scarcely discuss it. The effect of the lack of these elements upon healthy human beings is sufficient proof of the necessity of their presence in the treatment of disease, more especially in phthisis.

In connection with the comparative importance of different climatic attributes, a word must be said as to the difference between seashore and inland climates. Of necessity, no general law can be laid down on this point, but the weight of opinion may be said to be distinctly in favor of dry, inland climates for the treatment of incipient phthisis. The shores of the Mediterranean are famous as health resorts for consumptives, and although, in the opinion of Jaccoud and Hermann Weber, they are inferior to the inland and mountainous climates, yet a residence in that region is doubtless of great benefit to many; the dryness of the atmosphere, and a large percentage of sunshine being two most noticeable features of the climate.

Opposed to the idea of preference being given to inland climates, is the fact that most of the health resorts for consumptives in England are situated near the sea, where the climate is decidedly moist, and soft. As to the results in the cure of phthisis in these places, compared with those in mountainous regions, I am unable to make any statement, but the preference shown by English physicians, in sending their patients to such dry, mountainous regions as Davos, in Switzerland, speaks strongly in favor of the latter resorts.

Speaking for New England, it can be said that, while exceptional cases may do well, the moist, harsh climate of our northern coast is distinctly bad for consumptives, and it is my custom, as it has been my father's for years before me, to advise removal from the coast, if only to retreat to some comparatively dry region eight or ten miles inland, where the rigor of our harsh, damp winds may be avoided. Very different are the effects of a sea voyage or its equivalent, residence upon an island several miles from the shore. The reason of this difference is not satisfactorily explained, but doubtless the purity of atmosphere, and absolute freedom from dust, have much to do with it. As a cure for phthisis, however, either method may be said to hold a decidedly secondary position.

By comparing these facts again, we find strong evidence in favor of the attribute of atmospheric dryness in the treatment of phthisis.

To state briefly my present views: I believe that properly selected altitudes possess a combination of climatic attributes which, according to our present knowledge, form the best means of cure for cases of incipient phthisis in which there are no symptoms that would contraindicate residence at a great height —*e. g.*, cardiac weakness, excitability of temperament, marked feverishness, or a pronounced emphysematous condition, all of which symptoms are, according to the authorities mentioned, apt to be unfavorably affected by altitude.

At the same time, I believe we have much to learn as to the possibilities of cure in less elevated regions, like Aiken, South Carolina, where the quality of dryness is present with a bracing atmosphere.

Still further, we have a great field before us in the investigation of the effect of residence in comparatively favorable regions near our homes, where, by the establishment of sanitariums, we can combine climatic, hygienic, and medical treatment in such a manner that exile from home and family may not be thought, in the future, of such paramount necessity.

In accordance with my father's and my own custom of recommending, in certain cases, a residence in towns favorably situated within a few miles of Boston, I have, for some time, felt that much more could be accomplished by the establishment of sanitariums for phthisical patients in these regions. I determined to make the attempt to get some suitable institutions for those who cannot afford to go far away from home, in Sharon, Mass., a town situated between 300 and 400 feet above sea-level, about eighteen miles southwest of Boston. The soil is of a very porous nature, the atmosphere of a markedly dry, bracing character, pine forests abound, and a line of hills, moreover, shelter the town from our harshest winds. Through the generosity of one interested in the scheme, a farm favorably situated has been bought, and, relying upon the assistance of wealthy citizens of Boston, I hope, with the assistance of Dr. R. W. Lovett, to show, at some future time, that much can be accomplished in this way.

I was much pleased to find that Dr. Kretzschmar, of Brooklyn, several months ago, had called the attention of the profession in America to the gratifying results of Dettweiler, in his sanatorium at Falkenstein, in Germany; of Brehmer, at Görbersdorf, in Silesia; and other now well-known establishments, situated in not especially salubrious climates. The experience of these physicians in Europe, as well as that of Dr. Trudeau, in the Adirondacks, should give us reason to hope that, by means of similar establishments near our homes, even at a comparatively slight elevation above the sea, we can do a great deal toward arresting the present death-rate from pulmonary consumption.

I cannot conclude better than by quoting Hermann Weber, who, in the fourth division of his exhaustive work on climatology, says: "By erecting well-arranged establishments, under medical supervision, in well-situated places near at hand, a great many of the advantages of more distant climatic health resorts may be gained."

DERMATITIS TUBEROSA DUE TO INGESTION OF THE IODINE COMPOUNDS.[1]

By JAMES NEVINS HYDE, M.D.,
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A distinguished writer in medicine has recently declared that the reactive effects of the introduction of poisons into the human economy are sometimes presented with features that surprise the most skilful of physicians and are capable of leading to the gravest errors in diagnosis and therapeutics. In the confident belief that this statement furnishes the key to some of the most singular of the anomalies presented to the student of cutaneous medicine, I venture to make a third clinical contribution to the study of the eruptive lesions, pseudo-pemphigoid in type, induced by the ingestion more particularly of the iodide of potassium.

Case I.—On the 1st of March, 1888, I was summoned to one of the Chicago hospitals for the purpose of establishing the nature of a disease with which one of its inmates was affected. The patient, A. C., a girl eighteen years of age, was reported to be suffering from leprosy. She was found occupying one of the most secluded rooms in the building, cut off from contact with all outside save the physicians and the Sister in attendance. She gave the following history:

She was a native of Illinois. Her father had died in the twenty-ninth year of his life of typhoid fever; her mother, at thirty-eight, of some unknown acute disorder, who had, however, before her death contracted a second marriage which resulted in the birth of several children, some living and healthy; others dead in infancy of unknown disorders. Both of these parents had been previously healthy. The patient had never menstruated. She gave a history of vague sensations which she had experienced from time to time about the period of her twelfth year, which may have been more or less associated with a menstrual molimen. One day, in her fourteenth year, she was walking on a railroad track, when, by accident, she stumbled and fell. The whole weight of her body was thrown upon the right elbow which struck upon a steel rail. As the result of this, the joint became first acutely inflamed, and later persistently painful, hot, tender, and enormously swollen. During the next three years a series of recurring abscesses formed about this joint, some of which burst spontaneously, and some of which were opened by a surgeon. Each in the course of a few weeks would heal and be followed in a series of months, varying from two to six, by the occurrence of another abscess, which pursued the same general course, leaving the joint finally swollen and immovable. She had never suffered from any pilary loss, cutaneous affection, soreness of the mouth or tongue, or any other symptom of disorder. Her general health, apart from the accident and its complications mentioned, had been excellent. In January of the present year a final ulcer formed over the affected elbow-joint. She was in consequence brought to the hospital on the 2d of February, 1888, one month before the date of observation. She was then in the following condition:

She was a well-nourished and intelligent girl, presenting the childish appearance common at her age in young women who have never menstruated. She had no febrile symptoms. The eyes and teeth were normal and her senses unimpaired. The right elbow-

[1] Read before the American Dermatological Association, at the First Congress of American Physicians and Surgeons, Washington, September, 1888.

joint was symmetrically and extensively swollen, tender and painful, the arthritis which had resulted from her accident having left the joint in a state of pseudo-ankylosis, the forearm being flexed upon the upper arm midway between pronation and supination at an angle of forty-five degrees. Through a fistulous orifice on the outer face of the joint, a slender spiculum of bone projected, several millimetres in length. There was a faint, irregular scar on the outer face of the right foot which she said had resulted from a small abscess at that spot. There were no other scars upon the surface of the body. Her skin generally was smooth, soft, and entirely free from any cutaneous exanthem.

She was then ordered to take three times in the day, teaspoonful doses of a solution, each ounce of which contained one grain of iodine and one drachm of the iodide of potassium. On the third day after this medication was begun, a number of semi-solid papules appeared on the forehead; and two or three on the dorsum of the hands. There was a moderate coryza which led her to think she had "caught cold." By evening of the same day, the entire scalp and forehead were covered with smaller and larger lesions of the same general character, rapidly increasing in size. On the next morning her hair was cut short on the scalp and a poultice applied. The papules rapidly became large, softish tubercles, covering the scalp and face, closing the eyes, encroaching on the neck, in front and behind, and including the intra-scapular region, as well as the forearms and the hands.

Through the entire month of February the same internal medication was pursued, with constant aggravation of the cutaneous disorder, until my visit on the 1st of March. At this time the appearance of the patient was in the highest degree repulsive. The scalp, from which a cloth was removed spread with a salve, was completely covered with closely packed, pigeon's-egg-sized tubercles, the matted hairs projecting through and between them, all smeared with a puriform mucus, mixed with the fatty basis of the salve. The forehead, temples, cheeks, neck, and back were generally and symmetrically covered with superficially seated, small egg-sized, semi-solid, discrete and confluent, oval, roundish, and irregularly shaped tubercles, of a dull reddish hue, some standing out to the extent of several millimetres prominently from the general surface. Their summit was usually flattish, occasionally fissured and macerated with a mucoid secretion. Many strongly resembled large sized, secreting condylomata. A few presented the appearance of containing boiled sago grains. None were true bullæ, and none when punctured extruded their contents. Some were reported by the nurse as having furnished a profuse, greenish-yellow discharge before they had been cleansed. The forehead, especially the upper portion, was extensively and symmetrically invaded by these rapidly developing nodules, which were closely packed together; the brows and eyelids, particularly upon the right side, were so burdened with the same as to render it difficult to open the eyes. Some had the appearance of an irregular furrow filled with muco-pus at the summit, the general line of this furrow corresponding to the axis of the long, oval-shaped lesion, resembling the sausage-like tumors of mycosis fungoides.

It was almost impossible in the case of the larger of these lesions, so great was their size, to distinguish the individual elements of which they were composed. Some were so marked by lobules and fissures as to suggest that they were compounded of large bean-sized lumps. When incised, pus, blood, serum, and an inspissated, grumous fluid could be expressed from the wound, but the lesions were in no sense chambered. They were evidently masses of softish, vascularized epithelium, secreting superficially a thick, grumous, mucoid fluid, in places commingled with pus. There was little or no subjective sensation produced. The skin of the anterior thorax was scantily invaded. There were two large compound nodules on the flexor aspect of the right forearm; two also on the left hand; one on the dorsal surface of the web between the first and second metacarpal bones, of the size of a fifty-cent piece; another, small coin-sized, on the dorsum of the left index-finger between the distal and middle phalanges. Elsewhere there were no lesions upon the surface of the body. Iodine was detected chemically in the urine.

One of the conspicuous features of this case was the evident failure of correspondence between the eruptive symptoms and the general condition. The patient appeared to be neither weak in body, dejected in mind, nor stricken with any grave malady. She sat up in bed, gave full and intelligent details of her history, laughed heartily over the appearance she presented, and, on the whole, rather made light of her troubles. The remedies she was then taking were ordered discontinued, and she was given merely a ferruginous tonic. The result was a prompt and rapid disappearance of the exanthem. So rapid, indeed, was the subsequent process of involution that even though but two days elapsed before a portrait of the patient's face in oil could be made, a decided subsidence of the tumefaction occurred, and the color of the lesions became markedly less vivid.

The eruption, as it subsided, left distinctly circumscribed, dull red infiltrations, in patches covered with light and dark crusts superimposed upon the secreting surface. Here and there a slight and superficial atrophy of the skin in patches resulted. Two superficial ulcers formed on the back, doubtless as the result of the unavoidable pressure in a recumbent position. At no time were there evidences of general ill health. When the spiculum of bone was removed from the fistulous orifice in the neighborhood of the right elbow-joint, the parts healed without difficulty. In the site of a few of the larger lesions there was a distinct superficial cicatrization. The most characteristic of these scars was seen on the dorsum of the left hand. Here was one as large as a fifty-cent piece, circular in outline, and very slightly raised above the general level of the skin.

In two months after the discontinuance of the iodide, there were no skin lesions visible, beyond the pigmentation of the slightly infiltrated skin in the situation of the previous exanthem. In two

weeks more the drug was again administered in precisely the same dose as before. The eruption again promptly appeared over the scalp and forehead. Unfortunately, the surgeon, under whose direction this test was, at my suggestion, made, left the city soon after ordering the readministration of the remedy, and, as a consequence, more than a week elapsed before the medication could be stopped a second time. During this interval a serious and disfiguring second crop of molluscoid lesions appeared over the forehead, which happened to be neglected in the hot month of midsummer, and, as they secreted mucus very freely, they brought the patient into a condition which was almost as serious as that which had preceded, and which might certainly have been avoided. After this she returned to her country home, with the relapsing tubercles rapidly shrinking in consequence of a final suspension of the drug.

Case II.—H. E., a native of Iowa, a male infant, seven months old, was brought by its parents for examination, on June 2, 1887. They were both healthy-looking, and had had one other child that died in the third month, of some bowel affection. They reported that H. E. had always been a healthy-looking baby, and well nourished since its birth. It took the breast without difficulty. Its digestion was unimpaired, and its nutrition had always been good. At about the seventh week of life, a crust had appeared over the vertex of the scalp, which had been treated by a local physician, who prescribed for it a salve for external application, and a fluid remedy to be used internally. Since that date the present disease had gradually increased, and extended until the condition now noticed was reached. When examined, the child was seen to be well nourished, and to present the following appearance:

The scalp, face, ears, neck, and forearms were the seat of an almost confluent eruption, masking the entire surface involved. This had occluded the external auditory meatus of each ear, completely closed each eye, and rendered the separation of the lids difficult. This eruption was made up of closely packed, confluent, softish, and semi-solid tubercles, of a deep, mahogany-red hue, dry and moist in different parts, of about the size of a large pea. They were roundish or oval in shape, compressed by juxtaposition, or quite commonly flattened at the apex, often presenting there a depression similar to an umbilication, in places smeared with mucus. Some of these lesions suggested in appearance that they had boiled sago-grain contents; in others, far more numerous, there were simply closely packed, flat-topped, deep-red tubercles of the sort already described, looking very much like mollusca with semi-solid contents. They were not interspersed with pustules or bullæ, and bore no signs of traumatism. There were a few softish crusts upon some, composed chiefly of the inspissated smegma collected over the moister lesions. Their thickness added to that of the skin of the part affected, gave the head of the child the appearance of an enormous tumefaction. The neck, in front and behind, was extensively and similarly affected. The skin of the chest was relatively free. The skin of the forearms was covered with isolated lesions of similar character, rarely grouped. The upper arm was free. There were a few lesions of the same sort on the palms of the hands; none elsewhere. The color of this eruption was peculiar. It has been described above as of a dark mahogany hue; it was more empurpled than a deeply congested patch of eczema, and suggested somewhat the very dark color of the lesions in so-called "black measles" (hemorrhagic variola). A significant feature of this case was that noticed in the description which precedes, namely, the toleration of the exanthem by the skin. The child, though frightfully disfigured and unable to open its eyes, lay composed in its mother's lap, its stomach well distended with breast milk, and its chubby limbs resting quietly as it slept. When awake, it uttered no cries, and made no effort to rub or scratch the skin. It was well nourished, took the breast regularly, and slept contentedly in the intervals.

It was afterward learned that this infant had, since the beginning of its treatment, been taking the iodide of potassium in one-grain doses. The remedy had been steadily pushed from the beginning up to the time of this observation.

The eruption began to subside immediately upon the discontinuance of the drug. In three weeks the parents wrote that the child was still enjoying uninterrupted health, and, with the single exception of a small abscess which had burst back of the ear (undoubtedly due to the extensive irritation of the scalp), there had been no interruption in the general improvement. There was a final report that the child was perfectly well, nothing remaining but the pigmentation of the skin where the lesions had existed.

In this case no attempt was made either to reproduce the exanthem by the administration of the drug, or to examine the urine.

In the years 1879 and 1888, respectively, I read before this Association brief papers relative to the bullous eruption induced by ingestion of the iodine compounds. In these contributions attention was called to the literature of the subject as it then existed, which has since been enriched, it may be noted in passing, by the valuable and interesting work of our colleague, Dr. P. A. Morrow, and also by the appearance of the exhaustive monograph on "Iodism," by Dr. Elizabeth M. Bradley, of the faculty of Paris, a work which seems to have resulted from some of the suggestions of Fournier. Papers by Hallopeau, Hardy, and others, have also appeared, and contributed interest to the study of the same general subject. In the last of my two papers an attempt was made to establish a distinction between: (*a*) Cases in which a purely bullous exanthem, produced by ingestion of the iodides, was to be seen in persons of adult or advanced years, cachectic, syphilitic, adynamic, and often moribund at the moment of development of the lesion; (*b*) cases in which a degree of polymorphism was apparent, purely bullous lesions being then commingled with those of

different type; (*c*) cases occurring only in infants, children, and young adults, neither cachectic, syphilitic, nor moribund, oftener eczematous, but otherwise healthy, in which semi-solid, slightly umbilicated lesions resulted from ingestion of the iodine compounds, these lesions resembling condylomata or mollusca, and not conforming to the strictly bullous type.

The two cases reported briefly above, three of those contributed by myself in the papers just cited, and two cases reported respectively by the late Dr. Tilbury Fox and Dr. T. C. Fox, of London, all appear to belong to the last named class. I need not repeat a third time that the late Dr. Tilbury Fox is to be credited with first indicating the special character of this eruption in his use of the terms condylomata and mollusca as descriptive phrases for the designation of these odd-looking lesions. It is, however, proper once more to call attention to the fact, further emphasized by these two additional cases, that the lesions are not strictly bullous, are not chambered, are semi-solid in character, and often furnish a grumous secretion, as does the condyloma, from the flattened surface and flattened grooves of their apices. The lesions, characteristic in site, in appearance, and as to the subjects in whom they are displayed, somewhat resembled those described by Besnier as iodo-potassic anthracoid acne, and also those described by Drs. Duhring and Da Costa, of Philadelphia. They cannot be, however, recognized as strictly identical with those more lately described by Hallopeau as vegetative, and resulting in cicatricial lesions. The patient whose case Hallopeau studied was a feeble, poorly developed man, forty-eight years old, and syphilitic — conditions which seem incompatible with the production of the peculiar lesions described by Fox and myself. Nevertheless, the peculiar cicatrices first described by Hallopeau and recognized also by me in one of the cases above described, seem to be in this connection of special interest. The cicatrices in Hallopeau's case were isolated and depressed, their centre occasionally covered with crusts and vegetations. They were roundish in outline and varied in their size from a split pea to a small coin. A few were somewhat elevated above the surface. On the dorsum of the right hand of his patient was a violaceous cicatricial plaque, two centimetres in diameter, limited by an elevated border. Setting aside for the moment the suspicion that attaches to every such cicatrix in a patient confessedly syphilitic, it must be freely admitted that the description above given applies very exactly to one of the scars which were seen as a result of the exanthem in the first of my two patients. Here a number of delicate polycyclical lines, at the border of a few facial lesions, when examined with great care, seemed to be cicatricial in character, but the then quite recent disappearance of the extensive exanthem on the swollen face led to the suspicion that these cicatrices might later disappear, or be well nigh smoothed to imperceptibility in time. Such, however, was not the case with the distinct scar on the dorsum of the left hand. It was an unmistakable cutaneous cicatrix, of exactly the sort described by Hallopeau in the language given above, and resulted from a lesion induced by the ingestion of a drug.

Dr. Elizabeth Bradley, when her interesting monograph upon this subject was written, seems not to have seen the second of my two papers on this subject, though she carefully collates the facts contained in the first. Celso Pellizari's case exhibited lesions which were subcutaneous in situation, were accompanied by fever, and followed by abscesses. Morrow's remarkable case was that of a moribund patient, presenting strictly bullous lesions belonging to one of the other classes described above.

I have made this contribution to the general subject chiefly because of the interest which seems to me to attach to the first of the two cases here reported, the patient whose face was selected for illustration. The subject of the disease was neither syphilitic nor cachectic. She was suffering from a chronic arthritis, traumatic in origin, which had possibly resulted in localized tuberculosis of the joint affected. Her general condition was excellent; her skin was, and always had been, entirely free from any cutaneous eruption at the time when she first ingested the offending drug. There was no underlying diathesis to modify or induce an eruption. Here, too, was the soft and susceptible skin of a child, the fact of her arriving at what is usually the puberal epoch of her sex being offset by the failure to menstruate as already indicated. This is the first opportunity I have had of studying these condyloma-form lesions under anything like such favorable conditions. Enough is now known of this special form of medicamentous dermatitis to warrant the following conclusions:

First. When the iodine compounds, irrespective of the size of the dose, have been administered to well-nourished infants, children, and persons whose skins are in the condition usually found at these ages, a quasi-bullous rash may gradually appear, whose elements differ from the blebs which occasionally form when the drug has been administered to older persons, syphilitic, cachectic, or in grave conditions of prostration.

Second. The interest attaching to the recognition of the nature of the eruption is partly due to the fact that in the class named it may be superimposed upon an eczematous or seborrhœic condition, for which the iodide has been administered.

Third. The regions invaded are almost exclusively

the scalp, face, neck, upper chest, forearm, and hand.

Fourth. The subjective sensations experienced when the lesions are copiously developed are comparatively insignificant, and the disproportion between the disfigurement produced by the enormous cutaneous nodules and the generally fair condition of the patient is often of the highest diagnostic significance. The lesions are, strictly speaking, neither vesicles, bullæ, pustules, carbuncles, abscesses, nor papules. They are softish, semi-solid, roundish, oval or irregularly shaped tubercles, resembling mollusca and condylomata, flattened or umbilicated, or seamed and furrowed at the summit. They may be isolated and bean-sized, or agglomerated in patches as large as the palm. Whether they have grumous or sago-grain-like contents, or are filled with blood or serum, they secrete, like condylomata, over the free surface, and when covered with light-colored mucoid crusts these are usually furnished by the desiccation of the secretion named, and not by exudation and subsequent drying of the contents of the lesion. In color they are light reddish, dull purplish-red, or violaceous, and are usually well projected from the surface of the skin, being rarely subcutaneous in situation.

Fifth. Involution commonly progresses rapidly after the suspension of the drug, and is very rarely followed by circular, oval, faintly defined, and irregular cicatriform patches, in which the skin is left in an atrophic condition, not distorted or puckered.

These scar-like patches have thus far been studied only in the recent condition; and their condition and appearance after any prolonged period of time cannot now be determined.

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CASES OF TETANY, HYSTERICAL CONTRACTION, AND REFLEX CONTRACTION; ILLUSTRATING VARIETIES OF CHRONIC FUNCTIONAL TONIC SPASM.

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CASES of tetany in the adult, although they are not very commonly met with, yet present themselves in a great variety of forms, both in regard to the number and distribution of the muscles involved and in the duration of the contraction. The following case is remarkable in that the muscular spasm was so continuous (lasting many months) and involved the muscles of the body so generally:

CASE I.—M. H., twenty-six years of age, single, a seamstress, entered St. Peter's Hospital July 8, 1887. She had always been healthy till the first part of September, 1886, when, while menstruating, she was holding horses in the rain, and in trying to shelter a little girl, who was with her in the wagon, she, herself, became thoroughly drenched with rain. Almost immediately after this exposure her right hand felt stiff. This abnormal feeling in her hand continued, and two weeks later the muscles of the calf of the legs became cramped and hard, continuing so for about half an hour, during which time she was unable to stand. The next day the spasms returned, and, subsequently, they recurred more and more frequently and attacked the arms also, and, finally, involved all the muscles of the body. These spasms have, from the first, presented an intermittent character, but during the past six or eight months, even in the intervals of the spasms, the muscles do not completely relax but continue stiff. At times, especially when in bed in the morning, she thinks that she is perfectly well, but very soon the rigidity comes on. The acute attacks of spasm are usually confined to her arms and legs, but on several occasions the muscles of respiration have been slightly involved. She has no pain in any part of her body, although the acute attacks of spasm are somewhat painful. She always feels very hot, and even in the coldest weather likes to sit without any extra clothing by an open window.

The patient seems to be weak-minded and childish, but does not appear to be hysterical. At all times, even when asleep, all the muscles, except those of the face, are in a condition of tonic spasm, so that each one feels hard and the outline of each is sharply defined, as though faradized by a strong current. This is true not only of the muscles of the arms and legs but also of the cervical, thoracic, abdominal, and dorsal muscles. The muscles offer considerable resistance to passive extension, but the patient can use her limbs slowly; she walks on tip-toe, the feet are firmly held in the position of talipes equinus, and the hands are firmly held in a position half "clawed" and

half "obstetric" and at times are held rigidly so by an acute attack of spasm. Such spasms can be induced by firm and constant pressure applied just below the axilla over the course of the vessels and nerves, and when such pressure is applied, the patient first complains that her hand is cold and then the spasm comes on. Pressure on the ulnar nerve behind the elbow does not produce the spasm. The facial nerve does not show any exaggerated irritability to mechanical excitation. The superficial and deep reflexes seem to be normal, but the constant spasm interferes with their full development, and the same spasm prevents any satisfactory electrical examination. Absolutely no disturbance of tactile, painful, or thermic sensibility can be detected. No ovarian or spinal tenderness.

The patient remained in the hospital until March 24, 1888. Once she was etherized, which caused a complete relaxation of the muscular contraction, and, when in this condition, her joints were moved freely in all directions. The attacks of acute spasm became less and less frequent, and, finally, ceased entirely, but the tonic contraction continued unchanged. She continued to act in a childish manner and had one or two brief attacks of insanity. Hot baths seemed to produce some relaxation of the muscular contraction at first, but she obtained most relief by being in a very cold room and having but little clothing. Tonics, bromide of potassium, hyoscyamine and other remedies which were tried produced no good effect.

Remarks.—Notwithstanding the fact that in the medical literature to which I have access I have not found any description of a case of tetany in which the muscular spasm continued persistently for weeks and months, yet this case, it seems to me, must be regarded as a case of tetany. In the early part of its course it presented the intermittent form of symmetrically distributed spasm so typical of tetany, and, although later, the muscular contractions became continuous, and during the nine months that the patient was under observation, in the hospital, all her muscles, except those of the face, were so strongly contracted that the contour of every superficial muscle stood out as plainly as in an anatomical dissection, yet even while the muscles were thus continuously contracted, spasms of even more severe and painful muscular contractions occurred at long intervals, and could be at any time induced in the arms by pressure on the nerves and vessels together, but not by pressure on the ulnar nerve alone, and the facial nerve did not show that increased excitability to mechanical irritation which it usually shows in cases of tetany.

The feeling of heat from which the patient constantly suffered, and on account of which she always wished to be in a very cold room, might well be the result of the widespread, strong and constant muscular contraction; and yet, in spite of this constant, excessive muscular contraction, the patient still retained voluntary power over her muscles, and was able to execute a great variety of movements, albeit slowly and with difficulty. This fact, that the patient retained the power of voluntary motion indicates that the lesion or functional disturbance involved the gray matter of the subcortical centres rather than that of the cerebral cortex. The spasm, indeed, was not unlike that which might result reflexly in consequence of some powerful irritation; but no such irritation could be found, and the administration of anthelmintics resulted in no evidence of the presence of intestinal parasites.

If the diagnosis of tetany is correct, the case seems to be one of rheumatic tetany, inasmuch as a severe exposure to rain was the apparent cause of the disease. Usually cases of tetany are easily amenable to treatment, but this case showed no improvement during the time that the patient was in the hospital. The case might, perhaps, be regarded as one of hysterical contraction; and, I think, that it may be instructive to compare it with a case of hysterical contracture which was almost as widespread and was of even longer duration.

Case II.—B. B., twenty-five years of age, single, entered St. Peter's Hospital April 27, 1886. Patient's family history good. Eight years ago she had an attack which was pronounced hip disease, and was under treatment for one year and a half. She recovered quite suddenly and was able to walk with some difficulty. About two years ago she was attacked by a pain in her hip which seemed to draw her knees up, and when she attempted to walk she could only do so on her toes. It was pronounced curvature of the spine by the physician and a plaster jacket was applied, but afforded no relief. Attempts were made to straighten her legs by placing a padded board heavily weighted across her knees. About two months after the removal of the jacket she had a severe pain in her back, which extended up the spine to the base of the skull. Blisters were applied which afforded some relief, and she was able to sit up and move about the room. Since then she has had five similar attacks, and has been bed-ridden. About one year from date of the first attack she began having spasms at short intervals and was unable to take any medicine. The date of the last spasm was about four months ago. Patient complains of loss of sleep and appetite, and also that if she tries to swallow liquid of any kind it runs from her mouth before she can swallow it. During the past two weeks she has taken no food of any sort, as far as can be ascertained. She takes milk in her mouth but seems unable to swallow it. Bowels are constipated. Takes cracked ice freely. Lies in a fixed position and cannot make any movement except with her arms, and they act only imperfectly.

Her legs and thighs are flexed so that the heels almost touch the buttocks. The outlines of the muscles are not visible, and the muscles do not feel hard and contracted unless an effort is made to extend them. By steady traction the legs can be extended, but it is difficult to extend the thighs on the body. The arms are not held in any fixed position, but the head is drawn so far to the right that it almost touches the right shoulder. A couple of days ago there was no particular anæsthesia of the hands or arms, but there was of the legs. To-day there is almost complete anæsthesia and analgesia of both the arms and the legs. When the legs are extended they become flexed again very gradually; and when her attention is diverted they remain extended for some time. Abdomen is much retracted. There is no ovarian tenderness on either side. Extremities cold. Pulse small and rapid.

A few drops of a four per cent. solution of cocaine were dropped into her mouth, after which with some difficulty she managed to swallow a pint of milk. After that she took milk freely, each cupful being preceded by a few drops of the cocaine solution, and a week later she began to take solid food and the cocaine was stopped. At this time she had incontinence of urine and feces and was almost constantly soiled. Her legs, which were completely anæsthetic and analgesic, were straightened by passive motion several times daily, each time causing much pain in her back.

In the middle of May, her general condition having improved somewhat, the daily application of electricity to her legs was commenced, the faradic current being used because it was found to produce a more decided effect on the muscles than the galvanic current. In less than a week the electricity had produced great improvement, sensibility in all its forms had returned completely in the legs, she was herself able to extend her legs almost completely, and the incontinence of urine and feces ceased. She was able to sit up in a rocking chair, but her head continued to be strongly drawn to the right, and she insisted that one leg was shorter than the other, although the apparent shortening was evidently due to a drawing up of the pelvis on that side. The electricity was now applied exclusively to the neck and hip, and at the same time she was confidently assured that the electricity would lengthen her leg; with the result that three days later she could move her head freely in all directions, and the legs were apparently and actually of the same length. By the end of May she was able to walk about without assistance, and on June 6th she was discharged well.

July, 1888. I have seen the patient at intervals during the past two years and she has continued perfectly well.

Remarks.—In this case the spasm, though widespread, was not nearly so general as in the case of tetany; the muscles of the arms and body not being affected and the muscles of the neck being contracted on one side only, such unilateral spasm being common in hysteria and never occurring in tetany. The character of the muscular contraction was altogether different in the two cases; in the case of tetany the muscles were hard and clearly defined and evidently at all times firmly contracted, while in the case of hysteria the muscles felt soft and were apparently scarcely contracted at all unless an effort was made to extend them. The contraction seemed rather to be a voluntary one, which was only made when it was necessary in order to keep her limbs in the fixed position. In the case of tetany, notwithstanding the muscular spasm, the patient was able to move her limbs, although slowly and with difficulty; while in the case of hysteria, as is usual in such cases, with the spasm was combined an apparent muscular paralysis. In the second case there was a history of previous attacks of various kinds with sudden recoveries, and there were also disturbances in sensibility and in the organic reflexes which disappeared with great rapidity under treatment.

Very characteristic, furthermore, was the deportment of the two women. In the case of tetany the patient was a naturally acting woman, although of weak intellect; but in this last case, as well as in the case of the boy presently to be described, there was a certain attempt to produce a theatrical effect which is hard to describe but is easily recognized. The whole attitude of the patients seemed to demand sympathy, and at the same time it was evident that they were watching most intently every action of the physician and attendants.

One of the fixed ideas which the hysterical patient cherished the longest, was that one of her legs was shorter than the other, and it required a very decided assurance that the shortening would disappear under the use of strong electric currents, before she abandoned that idea. Such localized muscular spasms are common in hysterical subjects and not infrequently give rise to errors in diagnosis, and such spasms also occur in persons with irritable nervous systems, apparently as the result of some peripheral irritation, in which case they have been called reflex spasms. The following case may serve as an illustration of errors of diagnosis from such reflex spasm.

Case III.—W. W., twelve years of age. He states that he has never been sick, except that, in the spring of 1882, a lump suddenly appeared in the left lumbar region, persisted for about a week, and then disappeared just previous to the arrival of a surgeon who had been sent for to examine it. In the fall of the same year it was noticed that he limped badly. A surgeon of considerable prominence examined the

leg and thought that the left leg was decidedly shorter than the right, that the left trochanter major was above the line connecting the anterior superior spinous process of the ileum with the tuberosity of the ischium and that the left hip was dislocated. He accordingly gave the boy ether, and while manipulating and moving the thigh before he attempted to reduce it, the "dislocation," to his surprise, was suddenly reduced. A few days later, without any fall or accident, the same condition of things returned, and the boy was again etherized and the "dislocation" was again easily reduced. Ten days later, the boy went to bed as well as ever, and in the morning his hip was again "dislocated."

On that morning I examined the boy for the first time. He was lying in bed without pain and could move himself about easily. The left leg was held stiffly extended and was apparently two inches shorter than the right. On actual measurement, however, the legs were found to be of equal length, and the apparent shortening was due to a drawing up of the pelvis on the left side. All the muscles about the left hip-joint were hard and evidently firmly contracted, and just above the trochanter major was a bunch of contracted muscle which bore some resemblance to the trochanter major itself and might have been mistaken for it. The hip-joint was held stiffly by the muscular contraction and resisted passive motion. The right tibialis anticus muscle was also in a condition of chronic spasm. No anæsthesia. Long prepuce, which could not be retracted. The boy remained in the same condition for thirty-six hours, when the surgeon, whom I had not seen, came and reduced the "dislocation" under ether; "the bones going into place," he said, "with a sharp click."

A month later, without any known cause, the same symptoms again appeared. At that time I saw the boy with the surgeon, and we agreed that it was simply a case of muscular spasm, and, on giving the boy ether, without any manipulation whatever the hip returned to its normal condition. A month later the boy was circumcised, an adherence of the prepuce being found at a point close to the corona. The boy remained under observation for some time after the operation, but there was no return of the spasm, and I heard from him some two years later, and learned that there had been no return of the spasm in that time.

REMARKS.—It is doubtless true that the influence of an adherent prepuce in producing nervous disturbances reflexly has been greatly exaggerated; and, in such a case as the one just described, it is very difficult to say whether the boy suffered from an hysterical or a reflex contraction. After he had been given ether for the last time, he was made to understand very plainly that the doctors understood his case and that he would not be able to deceive them again, and the moral effect of this might have had quite as much to do with preventing further attacks as had the circumcision; and, certainly, after the last etherization there was no return of the spasm during the month which elapsed before he was circumcised. There are, however, many cases of spasmodic and convulsive attacks in "nervous" children, which are relieved by removing or freeing an adherent prepuce, and in which the cure can hardly be explained by any moral effect of the operation, but seems to be due to the removal of the irritation.

The three cases described above all probably depend upon some alteration in the central nervous organs; but the alteration, if it exists, has not, as yet, been detected, and they must be considered as examples of functional spasm. Organic diseases of the motor tract in the central nervous organs may give rise to continuous tonic spasms, which are usually confined to one limb or to one side of the body; and tonic spasms of a transitory character occur in the "occupation neuroses" and in other forms of nervous disease; but it is probable that all forms of chronic functional tonic spasm are varieties either of tetany or of hysterical contraction, or of reflex contraction.

MEDICAL PROGRESS.

The Treatment of Syphilis by Inunction.—FOURNIER, of Paris (*Rev. Gén. de Clinique et Thérapeut.*), in a clinical lecture, dwells upon the treatment of syphilis by inunction. The patient is first placed under a tonic regime; laxatives are not prescribed; the patient eats as much meat as he pleases; he takes walks—in fact, he is advised to spend much time in the open air; hydrotherapy and sea baths are ordered. Among ointments for inunction, that of the bichloride of mercury and the ordinary blue ointment are to be preferred. Recently, soaps, composed of equal parts of mercury and soap, have been proposed. The disadvantages of these are, that the inunction requires too much time. The dose of the ointment (unguent. hydrarg.) at first is a drachm; in the course of time it can be increased to a drachm and a half and two drachms. In the case of women and children, in view of the lesser tolerance, correspondingly smaller doses must be used. With children, thirty-five grains should not be exceeded. This dose is sometimes indispensable, but it should be remembered that fifteen to thirty grains may be given to infants only a few days old, without harm. In cases of severe syphilis, syphilis of the brain, and during a course of treatment with sulphur baths, in adults, the dose mentioned may be exceeded. Every application should be made with a definite quantity of ointment—for instance, seven drachms of mercurial ointment are ordered for one week, in seven equal parts. As a rule, the inunction should be performed but once a day, preferably before retiring for the night. The lecturer applies the friction to the side of the chest. This offers a large extent of surface, and the patient himself may undertake the application.

Two precautions are to be observed: 1. The ointment should not be rubbed into the scrotum, the groin, the pubes, and the axilla, because of too ready absorption. 2. To avoid irritation of the skin, the site of application should be varied, alternating the left and right sides of the chest, the inner surfaces of the arms and thighs. The friction is continued fifteen minutes for a drachm of the ointment, thirty minutes for a drachm and a half or two drachms. The application must not be a mere anointing, but the skin must actually be rubbed, but not with great energy. The parts treated are covered with cotton, linen, or flannel; if the chest, held in place by a binder; if the arm, by a shirt sleeve, etc. The ointment remains upon the affected part throughout the night, and is removed in the morning with soap and water. Twice a week a thorough bath is enjoined. Nothing definite can be stated relative to the number of applications. If the patient can be kept under observation, the treatment should be continued for from two to four months. It is agreed that it should not be too long continued, because, after a certain time, the mercury is no longer tolerated by the system. If the treatment becomes objectionable, the inunction may be omitted for a few days, to be again renewed.—*Deutsche medicin. Wochenschr.*, September 20, 1888.

Phenacetine.—There are three varieties of phenacetine: orthocet-phenatidine, paracet-phenatidine, and melacet-phenatidine, and Dujardin-Beaumetz has found, after much investigation, that the second named variety is the only one to be relied on. With this he obtains positive results and claims its superiority over antipyrine, in that it causes no eruptions. It may be given for much the same uses as antipyrine, but is, *par excellence*, the analgesic. He gives from fifteen to thirty grains in capsules. —*Journal de Médecine*, September, 1888.

Parkinson's Disease.—In the *Lyon Médical*, M. Gauthier reviews the standing of this affection, and concludes that it is not a neurosis; that the symptoms are exclusive muscular; and that the rigidity is produced directly by muscular causes without the intervention of any nervous element. He characterizes it as idio-muscular, but thinks it may be due to phosphaturia, with which these patients are often afflicted. In turn, the phosphaturia may be originated from purely muscular causes.

Treatment of Neuralgia.—Dr. Green reports in the *Medical Press and Circular* for September, 1888, good results from the use of chloride of ammonium in twenty grain doses. One of his most obstinate cases, which had resisted treatment for months, was speedily cured by this drug.

Phenacetine for Migraine.—Rabuske gave phenacetine to a female patient who was subject to prolonged and excessively painful attacks of *migraine*, with the happiest results. Arsenic, antipyrine, and electricity had all failed, and the patient's life became a burden. Phenacetine, in eight grain doses, morning and evening, effected a cure. —*Deutsche medicin. Wochen.*, September, 1888.

For Diabetes.—M. Constantine Paul recommends the following mixture for those who demand the sweet flavor and are prohibited sugar. A teaspoonful contains twenty-five centigrammes of saccharin, sufficient to sweeten a glass of water:

R.—Saccharin	. . . . .	6 parts.
Sodii bicarb.	. . . .	4 "
Alcohol (40 per cent.)	. .	100 "
Ol. menth.	. . . . .	gtt. xx.—M.

—*Am. Journal of Pharmacy.*

The Action of Strophanthus.—A. Mairet, Combemale, and Geognier, who on November 5, 1887, presented to the Paris Société de Biologie a report of their studies upon the action of strophanthus, now confirm the clinical observations that diuresis is produced and the blood pressure raised, that the pulse is slowed, but contradict the hypothesis hitherto generally received that the cause lies in the action of the drug upon the heart. Strophanthus has a specific action neither upon the cardiac muscle, nor upon ths cardiac ganglia, nor upon the medulla oblongata. Furthermore, they believe that the remedy acts solely as an irritant and more especially upon the kidneys. They found confirmation of this view at autopsies in effusions into the endocardium, into the lungs, in hepatic stasis and irritation of the kidneys.—*Deutsche medicin. Wochenschr.*, August 2.

Translucency of Tumors.—While translucency of tumors is generally conceded to belong to those with liquid contents, M. Poncet draws attention to the fact that this property is possessed by many *solid* tumors. He mentions several cases in support of his statement, among them being an enchondroma of the fingers, lipoma of the palm of the hand, and a tendinous cyst of the wrist, all of which permitted the passage of light.—*L'Union Médicale*, August 28, 1888.

The Differential Diagnosis between a Buccal Fistula below the Inner Angle of the Eye and a Lachrymal Fistula.—According to Scheff (*Wiener med. Wochenschr.*, No. 12, 1888), a buccal fistula below the margin of the orbit differs from a lachrymal fistula in that the former is never accurately at the orbital margin, but an eighth to a fifth of an inch below; that a sound never passes upward, but only downward or laterally, posteriorly; that the secretion is always purulent.—*Medicin. Chirurg. Rundschau*, August 1.

Local Treatment of Ulcers.—Rochard recommends frequent dressings if the discharge is abundant, and if there is much pain light coverings saturated with a decoction of marshmallow and poppy leaves. If gangrene threatens, the treatment is to be strictly antiseptic. For indolent ulcers he relies on balsam of Peru, and also has good results from the red oxide of mercury ointment. Iodoform is an antiseptic of great value, and markedly diminishes pain, showing its best results in venereal and phagedenic sores. Occasional cauterizations with nitrate of silver favor healing.—*L'Union Médicale*, September 8, 1888.

Tannic Acid in Burns.—Nikolsky (*St. Petersburg. med. Wochenschr.*) has successfully used a tincture of tannic acid in eighteen cases of burns of the first and second degrees. He directs: Acid. tannic, ʒj, alcohol (95 per

cent.) q. s. (*i. e.*, about ℥j), Ætheris, ℥j. M. s. The solution is to be preserved in a vessel with a glass stopper. The burned part is cleansed with a disinfectant. The tincture is then brushed over the surface until a firm membrane has formed. This is repeated twice or thrice daily, as the membrane ruptures. A dry compress is placed over the wound. The vesicles are incised, their contents expressed with cotton, the surface of the wound dusted with iodoform and then painted with the tincture. The pain is thus much diminished; the treatment is not protracted.—*Deutsche medizin. Wochenschr.*, August 2.

Tuberculosis and Hydrofluoric Acid.—M. Goetz, who has used this medicament quite extensively in pulmonary tuberculosis, concludes that its greatest value is in the restoration of the appetite, and finds this the most constant and favorable of its effects. The night-sweats are very often greatly diminished and, in many cases, the fever is modified. The diarrhœa and cough are not much affected, and he is not yet prepared to say that the *bacillus* is completely destroyed.—*Revue Médicale*, Aug. 20, 1888.

Strychnine in Alcoholism.—Berblinger. (*Russ. Med.*, 1887, No. 38) has permanently cured drunkards of alcoholism by twenty injections of $\frac{1}{100}$ gr. of strychnine.—*Deutsche medizin. Wochenschr.*, August 2; *Prag. med. Wochenschr*, 1888, No. 4.

Local Dressing for Variola.—

℞.—Iodoform	. . . . .	gr. xxx.
Camphoræ pulv.	. . .	gr. lx.
Vaseline	. . . . .	℥ jss.—M.

Apply twice daily where there are smarting and abrasions.—*L'Union Médicale*, September, 1888.

Antipyrin for Uterine Colic.—Windelschmid (*Allg. med. Centr. Ztg.*, No. 53) has had good results from the use of antipyrin in menstrual colic. He gives doses of thirty grains per anum during the menstrual period. Relief generally followed in a quarter of an hour; in one instance the clyster had to be repeated in twelve hours. In two cases in particular, in which all known means were used before and during the period, the pain and cramps lasting at times eight days, the injections, made morning and evening and on the following evening, were followed by the best results. A deep narcotic effect was noticed in conjunction with the sedative influence. Disagreeable complications, barring excessive perspiration and sometimes slight ischuria, did not arise. To avoid any exhaustion a glass of wine or beer was often given. The administration of five grains by the mouth to a seven year old boy was attended with urticaria and high fever of twelve hours' duration.—*Wiener med. Presse*, No. 30, 1888.

Physostigma in Chorea.—Riess has recently recommended the use of physostigma hypodermatically in chorea. He has used it many times with favorable results; finding, in some cases, a total cessation of the convulsive movements in six days. The cases occurred mostly in youthful subjects, and it was not so promising in the graver cases of adults. Still it did not always fail in those cases. He has used it in tetanus, paralysis agitans, spinal sclerosis, and in a case of hysteria in the male, accompanied with great excitability and increase of reflexes, with results that warrant a further trial. The dose was one milligramme.—*Les Nouveaux Remèdes*, No. 17.

Creasote in Carbonic Acid Water.—J. Rosenthal, of Königsberg, recommends (*Berlin. klin. Wochen.*, Nos. 32 and 33) the administration of creasote to the tubercular in carbonic acid water, containing to the pint nine or eighteen grains of creasotum purissimum, with an ounce of Cognac (the dose to be increased until twelve grains are daily administered).—*München. medicin. Wochenschr.*, August 14.

Diarrhœa of Infancy.—Veillard considers the essentials of treatment to be the cleansing of the gastro-intestinal tract of any undigested substances, and of microbes or ptomaines which rapidly develop. He uses castor oil, but prefers phosphate of soda, in doses of five to ten grains, to which he attributes antiseptic properties.—*Journal de Médicine de Paris*, September, 1888.

Hot Water in Hemorrhage from the Stomach.—Flashar (*Allgem. med. Centr. Ztg.*, Nos. 55–58) considers draughts of hot water the safest and pleasantest remedy for hemorrhage from the stomach. Water, as hot as can be borne, is given in quantities of a half to three-quarters of a tumblerful. That coagulation of the blood occurs speedily is often shown by fragments of clot which are subsequently vomited without further hemorrhage.—*Therap. Monatsh.*, August, 1888.

New Disinfectant.—

℞.—Essence of rosemary	. .	100 parts.
Essence of lavender	. .	25 "
Essence of thyme	. .	25 "
Acidi nitrici.	. . . .	200 "—M.

Shake the bottle containing the mixture, pour a little upon a sponge and allow it to evaporate. The vapors will mask any bad odors and destroy germs. This preparation is especially applicable in the sick room.—*Gazette Médical de Nante*, September, 1888.

Antipyrin in Psychiatrical Practice.—Investigations with antipyrin were undertaken by Fischer (*Pest. Med.-Chir. Pr.*, No. 33) at the insane asylum at Buda-Pesth. Given in doses of seven and a half to twenty-two and a half grains, the remedy proved to be a nervine in cases of headache and neuralgia, particularly in the trigeminal neuralgias of the hysterical; the result was unsatisfactory when the headache was the consequence of an already existing pathological change in the cerebrum. Antipyrin was inefficient in epilepsy; in individual cases, however, it manifested a hypnotic influence. It is not a reliable hypnotic.—*München. medizin. Wochenschr.*, Aug. 14.

Ichthyol in Carbuncle.—Félix, of Brussels, reports excellent results from the use of a mixture of ichthyol and camphor cerate, four parts of the former to fifteen of the cerate. He covers the carbuncle thickly with this and, at the end of twenty-four hours, removes the dressing and applies the stick of nitrate of silver to the suppurating points. He finds a rapid reduction of pain and swelling.—*Révue de Thérapeutique*, September, 1888.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 13, 1888.

CEREBRAL LOCALIZATION AT THE WASHINGTON CONGRESS.

While the whole Congress, with its two hundred and forty papers, and its distinguished *personnel*, was a great success, high-water mark was reached in the brilliant discussion on "Cerebral Localization." The abdominal surgeons, for a long time, have had it almost all their own way; but, for once, at least, they have had to yield to their rivals in this new field. Even in literature the *Uncloseted Skeleton* shows the deep and instant impression that cerebral surgery has made, not only in professional circles, but even on the public mind.

Two important papers had been read before the Surgical and Neurological Associations, relating four successful cases of operation: one for a large tumor, one for traumatic epilepsy, and two for focal epilepsy. These papers were in every way worthy of the subject, and awakened a lively interest among the many practical surgeons and neurologists in attendance. Following these, came the general discussion in the Congress itself. The novelty of the subject, and the admirable papers then read by Mills and Park, alone would have made this worthy of notice; but when we add the able discussion, and especially the thoughtful and polished addresses of Ferrier and Horsley, it becomes a notable event in American surgery.

It is a pleasure to notice that the whole subject of cerebral surgery is Anglo-Saxon in its origin, and thus far Anglo-Saxon in its development, with the single exception of Durante's case of tumor. No operation has been reported up to the present time, we believe, that is not either English or American.

The Congress will give a most important impetus to intra-cranial surgery, an impetus that will be both an advantage and a danger. The advantage will be that, as one speaker said, we shall rapidly "make experience," and learn how far we can go, and what we can prudently do. The danger is, that we shall have speedy reports, we fear, of operations that are evidently unwise, and that may possibly bring discredit on the whole subject. It will but repeat, however, what has already occurred in other new operations, and the use of new drugs, and will be its own correetive. Oscillation to each extreme always precedes rest.

We think it was clearly manifested in the discussion on these papers, however, that exploratory operations on the cranium are justified, as much so as those of the abdomen, and that we shall have to do them, not uncommonly, in order to verify, and sometimes even to make a diagnosis.

The analogy that was drawn by Keen between the viscera of the trunk and the areas in the cerebral cortex, while not, of course, literally true, will, perhaps, give a good many in the profession a clearer idea of the organization of the brain; of the possibility of differentiating the diseases of the various centres by their symptoms, and their physical signs; and of the propriety of operations upon them.

Horsley's address was particularly full of good points. His explanation of the various cortical motor areas in their relation to each other, as not separated by hard and fast lines, but shading into each other, with certain foci of more marked reaction, was very well stated. He insisted, also, that, in operating it is necessary, in order to effect a cure, that the excision should be complete, rather than the cautious excision of only a portion of the area of representation. This completeness, it must be especially remarked, involves the removal of more brain-tissue in the horizontal plane rather than in the vertical. In the vertical direction the transitions from the area of representation for one part of a limb to another, or even from one entire limb to another, is very much more marked than in the antero-posterior direction. The effect of antiseptics in speedily dulling, and even obliterating the response of the cortex to faradism, should be carefully borne in mind, and as soon as the brain is exposed the battery should be used immediately. His ex-

periment of tapping the cord to determine whether the clonic and tonic phases of the convulsion were due to the cortex or to the cord, was one of the most ingenious and brilliant that he has done.

In DR. PARK'S address we regretted to see his measurements expressed so much in "inches." Definite measurements cannot be accurate for all heads or for all ages. We should insist, especially at present in the initial stage of the application of cerebral localization, that the measurements shall not be absolute, but proportionate or relational whenever it is possible so to express them.

Another noticeable point was the hope expressed by FERRIER and other speakers, that even mental affections, especially those pertaining to hallucinations, and probably to other forms of insanity, may yield to surgical therapeutics in the future. At present our knowledge of the localization of the sense centres, still more of those for the emotions or other intellectual processes, is too imperfect for us to dogmatize. It is not unreasonable to hope, however, that experience will give us before long the means to locate, at least, some of the mental functions in particular areas of the cortex, and so lead to their successful treatment. In fact, Macewen has already in part realized this.

Five years ago the *Lancet*, in a leader, denounced Ferrier for his revolutionary ideas on cerebral surgery. It is scarcely too much to hope that, five years hence, the *Lancet* may congratulate Ferrier on his cure of some forms of insanity, as well as of those lesions which even now have been made amenable to the knife.

Another point we cannot help but notice. When Mr. Godlee, four years ago, announced for the first time the removal of a cerebral tumor, the operation was claimed, and rightly so, as one of the most direct and promising results of vivisection. The death of the patient gave rise to the most sarcastic attacks by the anti-vivisectionists. But they should have seen that, like the failure of the first Atlantic cable, it but pointed out the road to success. Of course, cerebral surgery is not wholly due to vivisection. Pathology may claim a large share in its evolution. But it is absolutely certain that, without vivisection, cerebral surgery to-day would not only be an impossibility, but probably would not have been realized for a score or scores of years to come, so indefinite and so inexact are the experiments of nature in disease.

We commend the papers and the discussions of the Congress to the *Zoöphilist*, and to the American Anti-vivisection Society, as a striking example before their very eyes, from day to day, of the active, practical development, and the beneficent results of vivisection.

DIET IN THE CONVALESCENCE OF TYPHOID FEVER.

A PAPER read by DR. HUTCHINSON, of Philadelphia, at the recent meeting of the Association of American Physicians, on the "Management of the Stage of Convalescence in Typhoid Fever," dealt fully with the risks attending this important period of the disease, and elicited a most interesting discussion upon the question of diet, about which opinion in the profession is still divided. DR. PEABODY, of New York, urged that, in mild cases, solid food might be given with advantage on the subsidence of the fever, when an urgent craving existed. He had never seen any ill effects from finely divided meat given once or twice a day. DR. ORD, of London, quoted a remarkable instance in support of the plan of allowing the appetite of the patient to be the guide in diet.

No absolute rule can be laid down, and each case must be considered by itself. The majority of practitioners will continue on the old plan of carefully regulating the diet during the first ten days after the temperature falls to normal. Relapses, we believe with DR. KINNICUTT, are rarely the result of imprudence, but the consequence of reinfection, and the rise in temperature, which we occasionally see after taking solid food, is not often more than a recrudescence of the fever. An early return to mixed diet, if carefully regulated, is rarely followed by grave complications, but almost every one with large experience has met with cases of perforation or peritonitis the result of some grave imprudence on the part of the patient. A deep ulcer may leave only a thin layer of the muscularis covered by the peritoneum, and we have known a full meal of mutton-chops, in the third week of convalescence, to be followed by a fatal peritonitis from perforation.

DR. WILLIAM OSLER, Professor of Clinical Medicine in the University of Pennsylvania, has been elected Professor of Medicine in the Johns Hopkins University and Physician to the Hospital, and the tender of the unsolicited position was accompanied with such substantial inducements as to insure its acceptance. This selection is another proof of the

admirable judgment displayed by the managers of the Hospital in the administration of their great trust.

Dr. Osler's large circle of friends will regard his merited appointment with sincere gratification, although to those in Philadelphia this will be tempered by a feeling of deep personal regret at his removal to another city.

The right of an author's ownership in his lectures has been again affirmed in the Common Pleas Court, on the application of Prof. T. G. Wormley, of the University of Pennsylvania, for a preliminary injunction to restrain W. B. Saunders from publishing and selling certain books containing notes on medical and general chemistry, which Dr. Wormley says are simply a summary and condensation of lectures delivered by him in the University of Pennsylvania, and were published by the defendant without his warrant or authority.

The *University Magazine* is a new monthly, edited by Drs. de Schweinitz and Hare, in the interests of the Medical Department of the University of Pennsylvania. The first number has just been issued, it contains several excellent papers, and gives promise of a healthful and useful life.

An experiment is announced to be tried in Brooklyn, in the way of forming a "protective alliance"—mellifluous synonym of "trades-union"—among the practitioners of medicine of that city, whereby their financial interests will be protected from imposition. This they expect to accomplish by the issue, for private use, of a list of names, commonly known as a "black list," and by the organization of a robust bureau of collection.

A great variety of experiments have been made in the large cities of this and foreign countries, for the protection of the financial rights of medical men, having for their keystone some form of "black list," but they have ordinarily been disappointing and short-lived. However well such lists may operate among grocers, tailors, and the like, there seems to be something radically inappropriate in the application of them to the healing art. The "boycott" too readily becomes an engine of oppression, and too much responsibility rests on a possible error of judgment or feeling of pique, on the part of some colleague, to become a part of the armamentarium of the disciples of Æsculapius.

Dr. Elkanah Williams, of Cincinnati, died on the 5th instant, after a long illness. He was born in Lawrence County, Indiana, on December 19, 1822, and graduated in medicine at the University of Louisville in 1850. In the autumn of 1852 he went to Europe to study ophthalmology, returned to Cincinnati in the spring of 1855, and commenced practice as a specialist in diseases of the eye and ear. In 1860 he was elected Professor of Ophthalmology in the Miami Medical College. He was elected President of the Fifth International Ophthalmological Congress which met in New York in the autumn of 1876. He was the author of several valuable papers in ophthalmological literature. His death removes from our midst one of the pioneers in this country in the development of modern ophthalmology.

In another column will be found the resolutions adopted at a meeting of the medical profession of Cincinnati expressive of the loss they have sustained.

REVIEWS.

An Illustrated Encyclopædic Medical Dictionary. Being a Dictionary of the Technical Terms used by Writers on Medicine and the Collateral Sciences, in the Latin, English, French, and German Languages. By Frank P. Foster, M.D., Editor of the *New York Medical Journal*. Vol. I., 4to. pp. xii. 752. New York: D. Appleton & Co., 1888.

This immense work is designed to give English definitions of all words used in medicine and the collateral sciences, in the English, French, and German languages. If this alone were done, its size need not to be nearly so great. In the present quarto volume, of between seven and eight hundred pages of small type, A, B and only a part of C are included. The first of the four large volumes of Johnson's *Cyclopædia* covers all subjects from A to E inclusive. So that, on its present scale, six volumes at least will be required to complete the work.

The occasion for this bulk is the encyclopædic extension given to the definitions of certain terms. This is very unequally done. Very many words, in each of the three languages, are briefly defined. Others, as *Apparatus*, *Bacillus*, *Bacterium*, and *Bone*, are exhaustively or, at least, elaborately, treated; each covering large numbers of pages. Again, the enumeration of similar French or German and their equivalent English terms is, in several cases, extended greatly; to our view, beyond the real needs of those who are likely to make use of such a dictionary.

Were the whole work to be carried out on a similar scale to that of the articles on *Bacillus* and *Bacterium*, a dozen or perhaps a score of volumes would be required for its completion. But many distinctly medical subjects are very briefly dealt with; more so, relatively, than in the three volumes of Copland's *Dictionary of Medicine*. On a considerable number of subjects, Dunglison's *Med-*

ical Dictionary gives as much, or, sometimes, even more, practical information.

Dr. Foster has been aided in the very great labor of this work by eleven collaborators. Among these, Dr. Duane appears to have taken the largest share. Chemical and botanical terms receive what, in justice, must be called a disproportionate amount of attention and space. Some plants which are seldom, if at all, used in medicine, are as exhaustively treated as would be necessary in a strictly botanical dictionary. While the result thus attained is highly creditable to the learning and industry of their author or authors, it is a question whether the practical value of the work is increased thereby in any like proportion. For our own use we would rather have had a simple medical dictionary of terms in the three languages; for which a single volume, perhaps less in bulk than this, might have sufficed. In favor of the plan adopted, however, we have the judgment, based on editorial experience, of the editor, Dr. F. P. Foster, and that of the able managers of a leading publishing house. We hope that their anticipations of its acceptance by the profession may be fully realized.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

Third Annual Meeting,

Held at Washington, September 18, 19, and 20, 1888.

(Specially reported for THE MEDICAL NEWS.)

(Continued from page 394.)

SEPTEMBER 18TH.—MORNING SESSION.

DR. J. C. WILSON, of Philadelphia, then read a paper on

CAUSAL THERAPEUTICS IN THE INFECTIOUS DISEASES.

Referring to the discussions of Hoffer, Brieger, Vaughan, Bourget, and others in regard to the part played by microorganisms in the production of ptomaines in the living as well as in the dead body, he stated that much had been done within recent years in clearing up the relation between the specific pathogenic germs of the infectious diseases and the symptomatology of these diseases. Efforts to work out a system of therapeutics directed against these germs have thus far been successful only within narrow limits and chiefly in local treatment, as in surgery and midwifery. Not the germs themselves, but the poisonous principles evolved by the germs in their growth and multiplication cause the phenomena of these affections. Is it not possible that, by acting upon the tissues and fluids of the body therapeutically, the function of these toxic principles may be controlled. In the preservation of meats and other articles from decay, it is the substance itself and not the putrefactive germ that is acted upon. In vaccination and preventive treatment by attenuated virus, the organism—not the pathogenic microörganism—is acted upon. The paper was based upon five cases of severe enteric fever successfully treated by hypodermatic injections of calomel, and three cases of phthisis, in which the symptoms were greatly ameliorated without any decided change in the local signs, similarly treated. Dr. Wilson desired the report to be regarded simply as a clinical experiment and as indicating a line of clinical research worthy of investigation. The paper was illustrated by clinical charts showing striking modifications of the usual temperature ranges in these diseases.

DR. GEORGE M. STERNBERG said that this subject was a very prominent one to-day, and every experiment has its value. He then referred to a method of treatment of yellow fever which he had suggested when in Havana recently. Believing that in yellow fever there must be a germ having the alimentary canal as its proper location and knowing that the secretion in the stomach is unusually acid, and finding the contents of the intestines to be acid, he, therefore, used an alkali, the bichloride, in moderate doses by the mouth. The formula he employed was ten grammes of the bicarbonate of sodium to the litre of water with two or three centigrammes of the bichloride of mercury. He has received reports of thirteen typical cases of yellow fever successfully treated in this way in one hospital in Havana. A series of thirteen cases without a single death certainly speaks very strongly in favor of this method of treatment. He was anxiously awaiting further reports on the subject. With reference to the cases of typhoid fever just reported, he thought we needed a still more extended series of cases. Dr. Wilson spoke in one of his cases of constipation and an elevation of temperature at that point. Perhaps it has not occurred generally to physicians that there is a cause for that, independent of the specific agent. There is in the alimentary canal of man a microörganism which generates a fever-producing ptomaine. He had made experiments with this bacillus, both with the recent culture and the sterilized one. Two or three cubic centimetres of this bacillus produce a rise of temperature, as does also the sterilized culture. So we have a fever-producing organism constantly present in our intestines. It is probable that the degree of fever may depend upon this organism, which is normally present in the intestine. From the researches made by Ehrlich in Naples with regard to his cholera bacillus which is normally present in the intestines of healthy persons, and from many recent researches which he had made in Havana, he had come to the conclusion that this bacillus does not confine itself to the large intestine where it belongs, but is found in the small intestine and stomach as well. He simply wished to direct attention to the fact that constipation in these infectious diseases and increased temperature may be due to the production of this ptomaine, and the indication is to keep the bowels cleared out.

DR. I. T. DANA, of Portland, said that the accumulation of evidence has been such as to attract the attention of the profession to the fact that infectious diseases are due to some form of bacteria. It seemed to him that some remedy could be found which might be safely introduced into the human system and destroy those germs. All who have thought of it, and who have experimented, must have come to feel apprehensive lest no medication could be found that could destroy the germs without, at the same time, destroying the individual, but it seemed to him that the suggestions drawn out by this very interesting paper are full of hope. It seemed to him the tissues of the human body may be so changed that they may be able to resist the action of the germ. The tissues may be rendered non-putrefactive. The ptomaine may be destroyed. By modifying the soil or preventing the activity of the ptomaine rather than by destroying the infectious germ itself in the human system he thought it likely that we will be able to modify these infectious diseases.

Dr. George L. Peabody said that at the meeting last year he had reported a number of cases of typhoid fever treated with naphthaline, and that, in a certain small number of those cases, he had seen a distinct abortion of the disease. His total number of aborted cases was only three, but they were distinct abortions of distinct typhoid fever. The three cases in the first ten or fifteen were the only cases in which an abortion of the fever was secured. He was quite convinced that naphthaline, as a means of aborting typhoid fever, is of very little value. He is at present pursuing the study of intestinal antisepsis in this disease, but his results are not sufficiently conclusive to justify him in bringing them before the Association.

Dr. Jacobi said that, in this connection, he would refer to the treatment of diphtheria with the bichloride of mercury. This disease cannot be treated by any other remedy as well as by bichloride. It has the advantage of being readily soluble, and, in sufficient doses, counteracts the specific poison. As far as naphthaline is concerned, he has never seen a case of typhoid fever aborted, but he is positive he has seen the diarrhœa get better, and the odor of the movements, as well as their character, changes in a very short time after its administration. In the diarrhœa of tubercular cases, also, in a large number of cases he had seen good results follow the use of naphthaline, and he is positive it is well worthy of trial.

Dr. W. W. Johnston said that it is necessary that we should recognize the fact that many cases of typhoid fever pursue a downward course, and that we must prove that the remedy materially alters the course of the disease.

Dr. Wilson, in closing, said that he did not claim that this treatment is anything more than a clinical investigation in the direction of general research to discover some method of treatment which appeals more or less directly to the causes of infectious diseases. The prevailing method of treatment is no treatment at all. Symptomatic treatment has no effect upon the general course of the disease, nor does it in any way abort it, and a treatment of expectancy is a confession of our inability to do any more. We are not at all aware of the mode of action of two confessedly curative substances used in the treatment of infectious diseases, viz., quinine in malarial disease, and mercury in syphilis. He was led to make these clinical investigations in consequence of his very successful use of calomel in syphilis, which resisted all other methods of treatment. He has been fortunate enough to escape the production of abscesses in a large number of cases treated in this way. Cases of enteric fever treated after this plan ran a milder course than any he had otherwise treated. His object in presenting this paper to the Association was rather suggestive than instructive, and he trusted no one would regard them as conclusive.

Dr. Frank Donaldson, of Baltimore, then read a paper on

THE DIAGNOSTIC SIGNIFICANCE OF THE PRESYSTOLIC MURMUR,

which will appear in full in an early issue of The Medical News.

Dr. J. K. Thacher, of New Haven, said that in these cases of mitral stenosis in which there is reduplication of the second sound, the aortic valves close first and the pulmonary second. This seems to be due, at least in part, to a prolonged ventricular close-time on the right side caused by exaggerated tension in the pulmonary artery, with, in some cases, a shortened ventricular close-time on the left side, due to diminished aortic pressure.

The murmurs in mitral stenosis depend on the form and size of the auriculo-ventricular orifice and the strength of the current. The latter is determined by the relation of the tension in the left auricle and ventricle. The fact recently set forth by Rolleston that, as seen in dogs, there is a marked depression in the tension-curve of the left ventricle, at the beginning of diastole, seems to me to be applicable to the explanation of the initial diastolic (so-called post-diastolic) murmurs, whatever views are held concerning the suction action of the left ventricle.

Dr. Osler thought that all are agreed that there is one cardiac murmur above another, which is positive and distinct in its diagnostic significance, viz., the presystolic murmur. He had an instance at the University Hospital last year, in which he demonstrated to his class a mitral presystolic murmur. The case was one of cirrhosis of the liver in a child with great enlargement of the spleen. To his astonishment, he found at the autopsy a normal auriculo-ventricular orifice. The heart was pushed up very far. He has recently written out short notes of a case of aortic insufficiency in which there was a distinct presystolic murmur. A woman was sent to his ward in the hospital in an extreme condition of emaciation. He placed his hand over the heart in the apex region and felt a very distinct diastolic thrill and his ear also detected an extremely loud, rough murmur, which he regarded as presystolic. The woman was not in a condition to permit of further examination. At the autopsy the mitral orifice was found to be normal, but there was extreme aortic insufficiency.

Dr. Donaldson, in closing, said in regard to the diagnostic difference between the presystolic and systolic murmur, the rhythm, character, area, and direction of the presystolic sound are different from those of the systolic. Not long since he had a case in which the diagnosis of insufficiency of the aortic valve was very easily made without a sign of presystolic murmur. It has been frequently demonstrated that we find mitral stenosis at the autopsy in cases in which we have found a presystolic murmur during life.

Dr. Robert T. Edes, of Washington, opened a discussion on the

ABSOLUTE AND RELATIVE VALUE OF THE PRESENCE OF ALBUMEN AND CASTS, AND OF RENAL INADEQUACY IN THE DIAGNOSIS AND PROGNOSIS OF DISEASES OF THE KIDNEY.

He said that many can remember when the discovery of the presence of albumen in the urine was regarded as a sentence of death. Albuminuria has held a place in medical literature akin to that of Bright's disease until quite a recent date. He thought there was no reason to discover a symptom, which to a physician can have no significance and to a patient is the source of groundless fears. Casts, he thought, were easier to identify than the different forms of albumen. There can be little doubt in the mind of any one that epithelial casts are very significant. There is probably no form of casts so unfavorable as long, large, straight casts, highly granular and fatty, looking like thin white threads.

They appear to be made up of degenerated cells. Where amyloid casts have appeared he has never known but one instance of recovery. A few casts may accompany a very slight amount of albumen and have no meaning. Where hundreds of persons have been examined the statement of no casts must be received with a certain amount of allowance. It is interesting to note that in oxalic acid poisoning albumen and casts were found in the urine by several observers.

The term renal inadequacy may be made to convey several shades of meaning. He would consider only the inability of the kidney to secrete water, urea, and other solids. He would not dwell upon this fact further than to say that oxaluria had a very serious prognosis.

The point of great interest is whether we can diagnosticate the early stage of chronic nephritis by a diminution in any one of the constituents of the urine. The statement of many text-books is that 30 to 40 grammes are an ordinary excretion for a healthy man. An amount a little below 20 grammes of urea is not to be regarded as below the limits of health. On low diet a patient may excrete 10 grammes of urea a day without any dangerous condition of the kidney. Chronic nephritis should have advanced to a considerable degree of atrophy before it makes itself manifest by diminution in the secretion. It may be safely concluded in cases in which the diagnosis is still doubtful that the determination of the amount of urea passed will give us no assistance. Imperfect nutrition with anæmia is a most frequent cause of diminished urea. It is not passed simply because it is not made. He would consider the presence of casts in the urine as a diagnostic sign of disease of the kidney. As to the examination for the quantity of urea, his impression is that it is almost of no value in diagnosis aside from other symptoms, unless the examinations are carried on for a length of time, and give the total amount, and not merely a percentage, which he considers of no value at all.

DR. EDWARD G. JANEWAY, of New York, said that, if we consider the diagnostic importance of albumen, we are forced to state that it is apt to be over-reached and its absence or presence is very misleading. The existence of an inflammation of the genito-urinary passages leading, as it does, to albuminuria, is liable to add the next greatest difficulty in relying upon albumen in the urine as a diagnostic sign. Fifteen years ago a young man, a patient of his, was supposed to have Bright's disease, from the fact of the presence of albumen in the urine. Suddenly a marked increase in the albumen took place and numerous pus cells were present. Fifteen years have passed since that time and no evidence of kidney disease has been shown by that young man. In diabetes albumen may be present, leading to errors of diagnosis and prognosis. The presence of albumen in small quantities in lead-poisoning does not lead to the fact that the lead produced chronic nephritis. At times albumen is absent from the urine in cases of waxy degeneration of the kidney.

In conclusion, he would say that a large quantity of albumen in the urine of several examinations points to either acute nephritis, large kidney, or waxy degeneration. Casts, while they are amongst the surest signs of disease of the kidney, may be misleading either by their presence or absence. If, by the microscope, we find hyaline casts present we are to consider some kidney trouble existing. A gentleman of good physique, a candidate for life insurance, whose urine contained casts, applied to him for examination. He applied for re-examination and he submitted samples of the night and morning urine. They failed to show casts. It was learned that he was in the habit of boxing for a half hour, perspiring freely, and then taking an alcohol sponge-bath. From this it follows that hyaline casts may appear in the urine, quickly formed and as quickly disappear.

DR. JAMES TYSON, of Philadelphia, then read a paper on

THE RELATION OF ALBUMINURIA TO LIFE ASSURANCE.

He said that medical examiners for life insurance companies have passed candidates who were the subjects of kidney disease. Functional albuminuria means that there is a functional disarrangement somewhere. The majority of medical examiners are not well educated nor well trained. There are three conditions that should govern candidates: 1. The applicant must present the signs of good health, extra-renal. 2. The albuminuria should be unaccompanied by casts. Casts and albumen can only receive one interpretation—structural change in the kidney, either acute or chronic. 3. The quantity of albumen irrespective of casts. If the quantity be large, it is unquestionably a proper cause for rejection. Urine which contains one-fifth its bulk of albumen may be certainly styled a large albuminuria. With regard to the specific gravity of the urine during twenty-four hours, the following rule may be laid down: Albuminuria is less significant when the specific gravity is high. When the specific gravity is above 1020, the assumption is that the albuminuria is functional; if it be 1010, it would be hazardous to accept such a case, however good his health may be, even in the absence of casts. Signs of hypertrophy of the left ventricle associated with albuminuria are conclusive symptoms of renal disease, and should exclude the candidate. In persons over forty years albuminuria is not likely to be functional. Such a person should not be accepted unless he has been long under observation. Persons who are the subjects of true gout should not be accepted, because it is followed sooner or later by kidney symptoms. Retinal affections should also exclude the applicant, even though no albuminuria be present.

DR. JACOBI said that to criticise papers of such excellence would be impossible, but he might be permitted to remind them of a simple anatomical fact which may explain the frequency at least in part of inflammatory diseases of the kidneys and the presence of albumen in children. It is true that children have diseases in which kidney trouble is very common. The anatomical fact to which he referred was that immediately after birth there is a peculiar discrepancy between the development of the renal artery and the growth of the kidney. The arteries do not develop uniformly. There is a certain discrepancy between the increase in growth of the renal artery and the growth of the tissue of the kidney. Besides, the capillaries of the kidneys of the young do not permit the same current of water to be pressed through them in the same time as the capillaries of the adult.

DR. PYE SMITH, of London, said that he had come to learn rather than attempt to give information. We have all felt the difficulty of deciding a case simply from the presence of albumen in the urine. He quite agreed with the author of the paper, as to functional albuminuria

being, at present, the most convenient term for that condition, because it depends upon several states differing very much from one another and only agreeing in the practical fact that none of them implies, structural organic disease of the kidney. Physiological albuminuria is a very mischievous one because it leads to the idea that we can overlook as a normal condition what certainly should always awaken a very grave anxiety. At present there is no physiological ground for believing that a healthy kidney secretes albumen at all. Those of us who have seen cases of physiological albuminuria so called will agree with him in saying that they are cases that must be carefully watched in order to prevent them from going from bad to worse and involving the kidneys in more serious trouble. He happens to be at present physician to a large London insurance company, and he would say that he had tried a great many tests for albumen in the urine, and he was driven back to the old test of heat and nitric acid as the most satisfactory of all. If we introduce new tests and new chemical criteria we would imperil the structure that has been reared during the past fifty years, clinically and pathologically. We cannot do better than keep to the results obtained by those two methods.

Dr. F. P. Kinnicutt said that about seven or eight years ago he published a series of cases of albumen occurring in children and adults, in all of whom the albumen existed in a large amount but without the presence of casts. He had an opportunity to keep these patients under observation up to the present time and in none of them has the health been impaired. In all the cases but one has there been a cessation of the albuminuria. It seemed to him that the future of such cases must be of interest to us.

Dr. F. Peyre Porcher said that in yellow fever albuminuria exists and is one of the most dangerous symptoms of that disease. He thought if yellow fever were treated during the first ten hours by large doses of mercury, quinine, and cold water, it might be reduced down to as little danger as any disease that exists.

Dr. Alfred L. Loomis then read a paper on

THE CARDIAC CHANGES IN CHRONIC BRIGHT'S DISEASE.

There are no more important facts to be remembered in our consideration of any disease than the fundamental law of self-preservation. Many so-called pathological processes become physiological when viewed from this standpoint. The most constant cardiac changes he has met with are dilatation of the heart's cavities, and degeneration of its walls. In those forms of renal disease in which the principal changes are in the Malpighian corpuscles and stroma, he had found no cardiac hypertrophy but the changes characteristic of Bright's heart. In all forms of chronic Bright's disease increased arterial tension and more or less compensatory hypertrophy are rare phenomena. Clinical experience teaches that rheumatic valvular disease of the heart may remain latent for many years, during which the heart will perform its functions effectively. Cardiac changes in chronic Bright's disease have a wide range of variation, and one cannot predict with certainty the exact changes in any given case, but sooner or later a condition of heart failure will be reached which may be designated as Bright's heart. The more marked the symptoms, the more unfavorable the prognosis. We must regard Bright's disease as a constitutional disease in which the repair and waste are imperfectly carried on.

Dr. Francis Delafield said that he wished to draw attention to several of the propositions presented. In the first place, that cardiac hypertrophy is often developed without any changes in the kidneys except thickening of the middle and inner coats of the renal artery. There can be little doubt that disease of the kidney may begin in the arteries of the kidney, but, as a matter of fact, we seldom find such kidneys at the autopsy. We have to look at this question of cardiac hypertrophy, with reference not only to the kidneys but to other parts of the body. In adults and in old persons, we may have a growth of connective tissue in the endocardium, in the arteries, in the lungs, and in the kidneys, and this growth of new connective tissue gives us either the character of a chronic inflammation or, as some people call it, a chronic fibroid degeneration of this part of the body. These changes are much more frequently associated together than otherwise. We do not often find a chronic endocarditis alone, a pulmonary emphysema, or chronic diffuse nephritis, yet they can exist by themselves.

Another thing about these lesions is, that they are often borne for years without giving the patient any trouble at all. On the other hand, we know that these lesions in other people are the most fatal ones that can be developed. What is the cause of this difference? Certainly one reason is, a certain number of these patients develop in the course of their disease a complicated condition of high arterial tension, which comes and goes in such a way that we are unable to explain it, except by the existence of temporary changes in the walls of the bloodvessels. We know it is one of the chief reasons some of these patients do well and some do badly. It is in this temporary condition of the bloodvessels we have to look for the hypertrophy of the heart, rather than in changes in the structural walls of the arteries. Dr. Loomis also states that morbid changes in the glandular structure of the kidneys are usually associated with morbid changes in the cardiac walls, and dilatation of the cardiac cavity. This point of dilatation and degeneration of the heart in connection with Bright's disease seemed to be the principal points of Dr. Loomis's paper. His experience differs from Dr. Loomis's in this respect. For himself, he should say that degeneration and dilatation of the heart without endocarditis, is certainly not the rule in chronic Bright's disease. It is not nearly as common as simple hypertrophy of the left ventricle. In many of these patients, when they do badly, we have the evidence of feeble heart during life, but he did not think, if we examine these hearts after death, we frequently find dilatation or degeneration.

Dr. George L. Peabody wished to allude to one part of the paper in which some observations made by him bear out the statements of Dr. Loomis. Some years ago he reviewed the records of 2000 consecutive autopsies, and though he had not with him the actual figures produced at the time, in a paper subsequently read by him before the Academy of Medicine in New York, he showed the percentage of cases in which the heart was not hypertrophied in well-marked cases of chronic diffuse nephritis. In these 2000 cases the number in which this form of chronic Bright's disease was present was very large, for the reason that in the hospitals of New York they have a

large proportion of cases of chronic Bright's. In those cases in which he had recorded notes and made microscopic examination of the kidney, there was a large percentage of them in which there was no hypertrophy. The observations he has made since have borne out the conclusions reached then. He has long since come to the conclusion that, as a means of assisting in the clinical diagnosis of chronic Bright's disease in this country, we have to abandon the clinical evidence of the size of the heart for the reason that the size of the heart does not vary. These were all hospital cases.

DR. WILLIAM OSLER thought we might divide the cases of chronic interstitial nephritis into two great groups as we see them clinically and in the post-mortem room. One, in which we have hypertrophy of the left ventricle. These are the cases which die suddenly with uræmia or inflammation of serous membranes. They, in his experience, have invariably hypertrophy of the left ventricle. There is another group in which there are marked signs of cardiac failure, often associated with dropsy. These have a dilated heart and dilatation of the muscular substance. He regarded that dilatation as a secondary one due to failure in the nutrition of the muscular substance, and in a considerable proportion of cases degeneration is associated with arterio-sclerosis in the coronary arteries.

DR. LOOMIS, in closing, said that Dr. Delafield must have made his observations in a different way or for a different purpose than he. He was certain that degeneration of the cardiac walls was present in a larger proportion of the cases than one would be led to suppose, unless he had made careful microscopic section.

He did not enter into these investigations with any preconceived views on the subject. He simply took the facts as they came to him. He did not believe the cardiac dilatation was a primary one, but he wished simply to convey the idea that in Bright's disease of the kidneys, whatever the form may be, before the fatal issue is reached, there exists, in a great majority of cases, a degeneration of the cardiac walls. The first unfavorable symptom to him, of a patient with Bright's disease, is the evidence of a failing heart. He did not regard the cardiac hypertrophy as part and parcel of the kidney lesion. It is at the period of middle life we see these degenerative changes, and if Bright's disease develops at this period we are likely to have a hypertrophied heart before the existence of the Bright's disease. He did not say these degenerative changes are the cause of dilatation, but a careful measurement of the cardiac cavities in these hearts that are feeble, where there is some form of degeneration of the muscular fibre, would lead him to believe that degeneration may have occurred only a short time before. In a feeble heart with disturbance in the function of the kidney we must recognize the fact that life cannot be prolonged for a very great length of time.

DR. S. C. CHEW, of Baltimore, read a paper on

THE RELATION BETWEEN CHRONIC INTERSTITIAL NEPHRITIS AND ANGINA PECTORIS.

He said that it is well known that some forms of Bright's disease are likely to be associated with organic changes in the heart, and the manner in which such cardiac changes are brought about has been the subject of many ingenious arguments. He quoted cases illustrating the relation between chronic interstitial nephritis and angina pectoris. Cardiac ischæmia, he thought, is brought about more by obstructed disease of the coronaries than by any other cause. A patient may die of angina pectoris without there being recognized at the post-mortem any vascular lesion whatever.

DR. PEABODY said that the fact which Dr. Chew brought out at the close of his paper of the occurrence of angina pectoris without there being recognized after death, any vascular lesion, is one of great importance when we consider that a patient may die in such an attack and yet leave no lesion. One clinical fact of importance, that has occurred in his experience, is the frequent failure of the vascular dilators to relieve the paroxysm. Nitrite of amyl and nitro-glycerine are of no value except when there is increased arterial tension. These paroxysms are as likely to come on when there is defective arterial tension as when there is an increase.

DR. CHEW, in concluding, said that he wished to refer in his paper only to cases of angina pectoris connected with chronic interstitial nephritis.

AFTERNOON SESSION.

DR. J. M. DA COSTA, of Philadelphia, opened the session with a paper on

THE TREATMENT OF VALVULAR AFFECTIONS OF THE HEART,

which will appear in full in *The American Journal of the Medical Sciences* for November.

DR. F. C. SHATTUCK said that in listening to the paper it occurred to him how very desirable it would be to have a heart tonic which would increase the efficiency of the contractions and at the same time not increase the resistance in the peripheral circulation. He should like to ask Dr. Da Costa as to the possibility of strophanthus supplying that desideratum.

DR. CHEW said that his experience with strophanthus was very various. He at one time thought we had in that drug something that would do good to the heart without in any way lessening its powers. Now he is not so sure of it.

DR. DA COSTA said that judging of strophanthus clinically it does not seem to have the power claimed for it, viz., of acting on the heart as well as the arteries.

DR. BAUMGARTEN, of St. Louis, then read a paper on the

DISTURBANCES OF THE HEART RHYTHM WITH REFERENCE TO THEIR CAUSATION AND THEIR VALUE IN DIAGNOSIS.

He said that intermission and irregularity of the pulse never fail to attract the attention of the physician, and have been the subject of much discussion. Anomalies of rhythm may be classed under four heads:

1. Mere fluctuations in the frequency of the heart's beat.

2. Variations in frequency, as well as amplitude of pulse.

3. All the numerous changes in rhythm.

4. Types of rhythms.

The rhythm of the incompetent heart can be increased by increasing the demands of the heart. A moderate degree of rhythm in the erect posture often ceases when the patient lies down. We may expect moderate degrees of irregularity in anæmic and cachectic patients. Dila-

tation from overwork is sure to produce a small, soft, accelerated pulse, and later on an intermittent or wholly irregular pulse. Irregularities of pulse arise sooner in mitral than in aortic disease. Acute myocarditis is characterized by a rhythmic pulse, small and very frequent, and the irregularity is an essential feature in the diagnosis. Sclerosis and narrowing of the coronary arteries are the cause of rhythm. Weakness of the heart from any cause makes the pulse frequent. In aged people the heart's rhythm is more easily disturbed than in young people.

Dr. E. T. Bruen, of Philadelphia, said that a short time ago he came across an article in the *Transactions of the Pathological Society of London*, in which there were recorded thirty-seven cases of fibroid heart, in which the pulse was markedly slow. He thought it an important matter to recognize, because it will aid us in the exclusion of fatty degeneration of the heart.

Dr. Edes said very few of these irregularities he had noticed particularly. He was glad to call attention to one thing he noticed, and that was the occasional intermission in certain cases of pericarditis in which a beat falls out or becomes much weaker.

Dr. Osler said there were one or two points to which he would refer: certain individuals suffer with extreme irregularity of heart for several years, without its producing the slightest inconvenience. In a foot-note to his article in Pepper's *System of Medicine*, he mentions the case of a man who had extreme irregularity of the heart since his fortieth year. Another point to which he would call attention is, in certain cases of mitral valve-disease extreme irregularity may exist with complete compensation, and an irregularity obstinate to every kind of treatment.

Dr. H. M. Lyman, of Chicago, said that in cases in which there is no valvular lesion, no dilatation of the heart; in which, in fact, the phenomena were merely functional, he had noticed disturbance of the heart-rhythm. Many of them seemed to be entirely due to a disturbance of the excretory organs of the body. He found them manifest themselves in persons of a nervous temperament, overworked, and harassed by business, and presenting no lesions of the kidney or heart, or organic changes of the liver associated with some degree of gastro-intestinal catarrh. Such cases as that he found not appreciably benefited by digitalis, or other heart tonics, but are greatly relieved by measures which tend to stimulate the action of the liver and kidneys. They frequently manifest symptoms of muscular rheumatism. Cases of this kind are very much relieved by laxatives associated with hepatic stimulants, blue pill with a little colocynth. These often give more relief than any specific cardiac drug.

Dr. A. E. Sansom, of London, said that great irregularity of the heart's action is very often consistent with perfect health. He has had several striking illustrations of this. He thought it the bounden duty of the physician, unless this irregularity is associated with cardiac changes, or unless we feel there is dilatation or degeneration, to try and disabuse the patient, and direct his thoughts away from the heart.

Dr. W. H. Draper said that some years ago his attention was called, by an article by Dr. Richardson, of London, to a class of cases which had been alluded to in this discussion, in which irregularity of the heart persisted for many years. Dr. Richardson traced many of these cases to extreme nervous shocks, loss of property, grief from the loss of a relative, etc. He has been able to confirm Dr. Richardson's observation in a number of instances. He would like to ask Dr. Baumgarten if that agreed with his observation.

Dr. Baumgarten, in closing, said that perfect consistency of good health with irregular pulse has been mentioned. The intention of his paper was to try to arrive at a systematic view of all rhythms. Of course, it was not his object to include the exception rather than the rule. The person who observed rhythms with perfect health has, of course, observed a great many more rhythms with imperfect health.

(To be concluded.)

AMERICAN NEUROLOGICAL SOCIETY.

Fourteenth Annual Meeting,
Held at Washington, September 18, 19, and 20, 1888.

(Specially reported for The Medical News.)

Tuesday, September 18th.

The President, Dr. James J. Putnam, of Boston, in his opening address called attention to the value of what practically amounted to collective investigation and referred, in particular, to his own research as to the influence of small quantities of lead upon the organism. He stated that he is now engaged upon a research with the object of discovering whether or not, small quantities of this may exist in the body without producing appreciable effects.

Dr. Philip C. Knapp, of Boston, then read a paper on

NERVOUS AFFECTIONS FOLLOWING INJURY (CONCUSSION OF THE SPINE, RAILWAY SPINE, AND RAILWAY BRAIN).

The principal points to which he called attention were as to whether there are real lesions produced in the majority of these cases, or whether the symptoms do not partake to some extent of an hysterical or psychical character. He quoted largely from both English and German writers in regard to this point, some of whom stated that chronic tabes may result from prolonged concussion, such as that to which railway engineers are subjected. Attention was called to the fact that Page and the reader regard railway spine as commonly being due to lumbago or muscular asthenia and stiffening. Dr. Knapp also reported several cases and the whole tenor of his paper rather supported the functional than the organic idea of the disease.

Dr. Seguin, of New York, in the discussion which followed, spoke about the conditions which might come on in hypnotism as resembling somewhat those symptoms which persons suffering from railway spine might present. That is to say, the auto-suggested symptoms of some hysterical persons might bear a very close resemblance to the statements made by persons under the influence of a sudden nervous shock, such as that produced by railway accident. The speaker also made the statement that he has never seen a patient of this character present symptoms which could not be simulated.

Drs. Lloyd and Deaver, of Philadelphia, reported

A CASE OF FOCAL EPILEPSY, SUCCESSFULLY TREATED BY TREPHINING AND EXCISION OF THE MOTOR CENTRE.

Dr. David Ferrier, of London, at the invitation of

the Association, spoke concerning the interest and value of such cases, and called attention to the fact that as the case had only been operated upon three months ago, it was entirely improper to report it as one completely cured. He cited an instance of a patient under his care who had been operated upon by Mr. Horsley, but in whom the operation eventually proved valueless, although for some months afterward, the fits were almost completely put aside. On the other hand, he cited a second case occurring in his own practice, the result of which was strikingly opposite from that just quoted, and which also was operated upon by Mr. Horsley. The patient just prior to the operation passed almost into the *status epilepticus*, having as many as 3000 fits in fourteen days, but recovered completely after the operation.

Mr. Horsley agreed with Dr. Ferrier in every thing which he had said, and spoke of the great value which such operations possessed. In regard to the question as to whether patients had loss of true tactile sensibility, or whether the apparent loss depended upon loss of muscular power, Mr. Horsley pointed out that if pressure was made of a finger against the nail and cushion of the digit, the patient by the mere sensation in his arm is able to tell what you are doing; but, if the thumb, for example, be grasped by the operator with his thumb and forefinger at the sides of the phalanx, and then passive movements are made, the patient is unable, if sensation is locally impaired, to describe the movements employed. He also pointed out that a very good method of forcing a patient to indicate the point touched was to tell him, when blindfolded, to place the index finger of his opposite hand upon the spot. He also mentioned an instance in which the patient using this method always indicated with his index finger the segment nearer the body than the one actually touched by the physician.

Dr. Gray, of New York, thought that no case should be reported as cured until at least five years after the operation, and cited cases in support of this belief.

Dr. Putnam, of Boston, then reported

A CASE OF INFECTIOUS NEURITIS,

which was illustrated by a large number of colored drawings and microscopical specimens. The age of the patient was twenty-eight years, and the changes particularly noticed were around the nodes of Ranvier. Death occurred from asphyxia.

Dr. Pye Smith, of London, at the request of the Society, spoke of the value of Dr. Putnam's research, which he thought was particularly instructive in view of the fact that so few post-mortem examinations are obtained in such cases. Aside from the question of drink, he was interested as to the influence exerted in the production of the disease by the gouty diathesis.

Wednesday, September 19th.

Dr. L. C. Gray, of New York, presented a paper on

THE DIFFERENTIAL DIAGNOSIS BETWEEN GENERAL PARESIS, CERTAIN FORMS OF INTRACRANIAL SYPHILIS, AND THE CEREBRAL TYPE OF DISSEMINATED SCLEROSIS.

He was of the opinion that the tremors of disseminated sclerosis are entirely cortical in origin. He mentioned the interesting fact, to which attention has already been drawn elsewhere, that the tremor of paralysis agitans and that resulting from electrical stimulation of the cortex in the monkey were identical in that the tremors were at the rate of eight per second.

Dr. Webber, of Boston, spoke of the fact that it was perfectly possible to have disseminated sclerosis with no tremor, and thought the paper very instructive.

Dr. Peterson then read a paper in which he described the results of research carried out by him respecting the

CHARACTER OF VARIOUS TREMORS.

He called attention to the fact that both diseases and drugs may produce such abnormal movement, and reminded the Association of the fact, long since discovered, that tetanus is but a frequent discharge of impulses from nervous centres. The tracings which Dr. Peterson showed were very interesting and had evidently been taken with considerable accuracy by means of a modified sphygmograph.

Dr. Sinkler, of Philadelphia, asked whether Dr. Peterson had ever been able to obtain a simultaneous tracing of both knee and ankle clonus. He replied that he had not.

Drs. Lloyd and Deaver, of Philadelphia, reported a

CASE OF TUMOR OF THE CERVICAL SPINE.

The patient presented all the symptoms of cervical pareplegia before the operation, and died three days afterward.

Dr. Shakespeare, who made the microscopical sections of the spinal cord, made some remarks concerning it, in which he expressed the belief that the morbid process seen under the microscope in the anterior portion of the cord was hemorrhagic in type.

Dr. Sinkler, of Philadelphia, presented a paper on

HEREDITARY CHOREA,

in which he reviewed the literature of the subject very thoroughly, and pointed out that the southeastern portion of Long Island seemed to be the point of residence for the disease. The disease is peculiar, other than owing to its hereditary character, in the fact that it seldom appears except in persons well advanced in adult life, never is cured, often is complicated by insanity, and progressively gets worse.

CORRESPONDENCE.

THE WHITECHAPEL MURDERS.

It has been a source of no little surprise to the writer that, considering the universal attention and numerous conjectures raised by this dreadful series of crimes, no clear idea of the character or purpose of the perpetrator seems to have been obtained. While one writer conjectures that the murderer may be a woman, another sees here but a general lesson, and exemplification of the well-recognized law that filth will breed filth, and this is but the natural consequence of the pestilential moral atmosphere in which the inhabitants of a part of London are reared, and in their turn raise their children. To the writer the probabilities in the case seem to point overwhelmingly to the mainspring of *sexual perversity*, which, in an aggravated form, seeks to gratify its morbid desires by victimizing women of the same class, who have at one time been the source of gratification of the normal instinct. Instances of this kind are not rare in literature, and the instinct to victimize the object of the

passion is shown in a scale of progressive crime, from the simpler forms in which the sexual pervert finds it necessary to bite, or scratch, or stick pins into the woman to excite his desire, or to cut or injure in such a way as to draw blood, all the way up to those frightful cases of fiendish barbarity, in which the life of the victim is demanded as a sacrifice to secure the full enjoyment of the sexual act. The writer has thus been, from the very first reading of the peculiar nature of the Whitechapel crimes, fully in accord with the views of Dr. Mills, expressed in the Philadelphia *Press* of October 3d.

The great liability to error on the part of the officers of the law, in the investigation of such cases as the present, lies in the fact that they are misled in their effort to appreciate the *motive*, and invariably attribute it to an *ordinary criminal instinct*. Such, however, is not the case, and it is as impossible for a sound healthy man to conceive the nature of the impulse which impels the pæderest, or other sexual pervert, as it would be to conceive a new color.

The following examples serve to illustrate the peculiarity the instinct exhibits in these cases of adopting and adhering to one particular mode of expression as well as several grades in the criminality.

Tarnowski quotes from Eulenberg (*Vierteljahresschr. f. gerichtl. Med.*, 1878, Bd. 28, S. 61) a curious case, which is but a type of a large number exactly similar in character. Cases in which the sexual instinct is roused by white objects, more particularly the white underclothes of women. The victim of the passion steals these, and retires to his room with the white garment for the purpose of pollution. Sometimes he will wear the wash for awhile.

Brierre de Boismont (*Gazette Méd.*, July 21, 1849, Tarnowski) cites a case, a type of another class, in which the victim of the appetite seeks to gratify his passion by violating the corpses of young females recently died, which he accomplished in more than one instance, by heavy bribes to the watchers. Another case of violation of the dead was one in which a soldier escaped periodically from his garrison, and dug up recently buried corpses, and with great frenzy tore them open and pulled out the entrails and there polluted himself.

The case of the Marshal of France, Gilles de Rayes (S. Jacob, *Curiosités de l'histoire de France. Causes célèbres.* Paris, 1859), is well known, and has a more direct bearing on the horrible instance under consideration. He was condemned to be burnt to death, in the time of Charles the Seventh, for the violation and murder of more than eight hundred children in the course of eight years. He had lived in retirement in his castles in Bretagne, where he had practised the most frightful cruelties upon children of both sexes. He had first been brought to a desire to commit his crimes by reading Suetonius's description of the orgies of the Emperor Tiberius, Caracalla, and others. He was in the habit of burning the bodies of the children, keeping the prettier heads as mementos. "I enjoyed," says the Marshal in his defence, "in this practice the most indescribable pleasure." He confessed to the King that he had left court on account of this irrepressible desire to violate children, and his fear that he would be guilty of carrying out his practices upon the heir apparent.

The conjecture of the writer seems to be supported in the instance before us by a variety of circumstances. A desire to murder without any *apparent* motive, a desire which practises its cruelties invariably upon women, and that of a certain class; added to this the mutilation of the genitals of the corpse, and, in at least one instance, the peculiar practice of slitting open the belly and drawing out the entrails. In addition to this it is of importance to note the periodic outbreak of the crime, in some measure corresponding to the time necessary to recuperation from violent sexual exhaustion.

It would be of importance to search the corpses, when freshly found, for evidences of violation of this kind, although such is not necessary to establish the truth of the supposition. Sexual perverts of this character never *begin* by the commission of crimes of such frightful atrocity, but yielding to impulses to do slight injury to their victims, find, as time goes on, that it is necessary to practise greater and greater cruelties, to arouse their desires and gratify passion, until a stage like the present is reached. Such has with probability been the history of the present murderer.

Aside from the truth or falsity of these views, the lesson is a valuable one. Such cases have repeatedly occurred, and the tendencies which produce them are, not only in Europe, but even in our own midst, rife to-day. While much that has been previously written on this subject has served more to gratify the fancy of the curious, Tarnowski has shown that there is a definite law pervading the whole, producing the more or less frequent appearance of these monsters, as definite as the law of gravity. The victims of the disease are not confined by any means to the debauched lower classes, but circulate in every social circle. They are mostly children of psycopathic parents, of drunkards, and men who have sowed their wild oats in their youth, who vainly imagine that with their resolution to reform and marriage, all evil consequences are left behind them. Such men either generate women who have no sexual instinct at all, or boys who become masturbators or seek by pæderasty or some other abnormal way to gratify their unchaste feelings. They are wretched, nervous, excitable children of a depraved parent. Excess of wealth and excessive poverty breed such diseases. Men who have no need to work, seek pleasure in excesses in which one vies with another to outstrip him in crime. Men who cannot find work they seek, are driven likewise to excesses to drown despair. What more can the guardians of public health and morals do at present than vigorously stamp upon every appearance of such crimes however slight in their beginning, and elicit a full, free, and healthy discussion of this whole subject by medical men?

Howard A. Kelly,
Assoc. Prof. Obst. Univ. of Penna.

NEWS ITEMS.

The Late Dr. E. Williams.—At a meeting of the medical profession, held October 6, at the Miami Medical College, in response to a special call, to take action on the death of Dr. E. Williams, Dr. John A. Murphy was chosen chairman, and Dr. Robert Sattler, secretary. The following resolutions were adopted:

"The death of Dr. E. Williams, the veteran and distinguished oculist of Cincinnati, deprives the ranks of the medical profession of one of its most noted and use-

ful men, and the community loses also a noble and unselfish friend of humanity.

"As a man he endeared himself by his cheery and genial disposition and his unselfish characteristics to his professional colleagues, both old and young, and no one more generously received the appreciation and gratitude of his patients.

"As a physician he was equally esteemed by the profession and the community for his untiring and energetic efforts to promote the advance of medical knowledge, and in particular in the department of ophthalmology. Faithfully and zealously were his best endeavors and most assiduous energy devoted to this important division of the medical sciences. For a period exceeding thirty years he was active as a specialist and devoted all his attention and time to ophthalmology and otology. Justly does he deserve the credit and distinction of having been foremost among a limited number of men in aiding the introduction and establishment of ophthalmology as a recognized department of medicine and surgery in America.

"Throughout this long period he has been constantly identified with medical education. His superior qualifications as a lecturer and teacher gave him unlimited scope of usefulness as a successful instructor, and gratefully will he be remembered by a countless number of students.

"His unlimited capacity for practical work afforded him additional opportunities to aid in the alleviation of suffering, and with unremitting attention he assumed and discharged faithfully the arduous duties of a college, hospital, and dispensary position.

"He was lavish, it may be even said reckless, in his offerings to charity and poverty-stricken patients; but if he erred in giving his services freely and gratuitously, it was only to carry out his desire to do good for the sake of good, reward or no reward.

"The medical profession of Cincinnati herewith acknowledge their appreciation of Dr. E. Williams as a distinguished physician, and unite in their expression of sorrow and sympathy over the announcement of his death."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 2 TO OCTOBER 8, 1888.

WILLIAMS, JOHN W., *Major and Surgeon.*—On duty with the Battalion of the Second Artillery, now at Fort Wadsworth, New York Harbor, is granted leave of absence for one month, with permission to apply to the proper authority for an extension of one month.—Par. 1, *S. O. 209, Headquarters Division of the Atlantic, Governor's Island, New York City*, October 4, 1888.

CRONKHITE, HENRY M., *Major and Surgeon.*—On being relieved by Captain Corbusier, will report for duty to the commanding officer, Little Rock Barracks, Arkansas, reporting by letter to the commanding general Division of the Atlantic.—Par. 10, *S. O. 227, A. G. O., Washington*, September 29, 1888.

ADAIR, GEORGE W., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Brady, Michigan, and will report for duty to the commanding officer, Fort Robinson, Nebraska, reporting by letter to the commanding general Department of the Platte.—Par. 10, *S. O. 227, A. G. O., Washington*, September 29, 1888.

By direction of the Acting Secretary of War, the following named officers of the Medical Department will report, in person, on the dates set opposite their respective names, to the President of the Army Medical Examining Board, Army Building, New York City, for examination for promotion: *Captain and Assistant Surgeon* JAMES C. MERRILL, October 16, 1888; *Captain and Assistant Surgeon* GEORGE MCCREERY, October 16, 1888; *Captain and Assistant Surgeon* RICHARD W. JOHNSON, October 9, 1888. Upon the completion of their examination, the officers named will rejoin their stations.—Par. 5, *S. O. 231, A. G. O.*, October 4, 1888.

CORBUSIER, WILLIAM H., *Captain and Assistant Surgeon.*—On being relieved by Captain Taylor, will report in person to the commanding officer, Fort Hays, Kansas, for duty at that post, relieving Major and Surgeon Henry M. Cronkhite, and reporting by letter to the commanding general Department of Arizona.—Par. 10, *S. O. 227, A. G. O., Washington*, September 29, 1888.

By direction of the Acting Secretary of War, leave of absence for six months is granted WILLIAM B. DAVIS, *Captain and Assistant Surgeon* (U. S. Army).—Par. 12, *S. O 232, A. G. O.*, October 5, 1888.

By direction of the Acting Secretary of War, the leave of absence granted JOHN M BANISTER, *Captain and Assistant Surgeon*, in S. O. 210, September 10, 1888, from this office, is extended one month.—Par. 2, *S. O. 232, A. G. O.*, October 5, 1888.

TAYLOR, ARTHUR W., *Captain and Assistant Surgeon*—Is relieved from duty at Fort Robinson, Nebraska, and will report in person, without delay, to the commanding officer Fort Grant, Arizona Territory, for duty at that post, relieving Captain and Assistant Surgeon William H. Corbusier, and reporting by letter to the commanding general Department of Arizona.—Par. 10, *S. O. 227, A. G. O., Washington*, September 29, 1888.

RAFFERTY, OGDEN, *Lieutenant and Assistant Surgeon* (U. S. Army).—Will stand relieved from duty in connection with the Division rifle competition, the 7th instant, and, under Par. 6, S. O. 2, c. s., Headquarters Division of the Missouri, will return to his proper station, Fort Clark, Texas.—Par. 5, *S. O. 95, Headquarters Department of Texas.*

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING OCTOBER 6, 1888.

HUDSON, ADRIAN, *Medical Inspector.*—Ordered to the Naval Hospital, Mare Island, California.

GIHON, A. L., *Medical Director.*—Detached from the Naval Hospital, Mare Island, California, and proceed home.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FOUR WEEKS ENDING OCTOBER 6, 1888.

PURVIANCE, GEORGE, *Surgeon.*—To proceed to Washington, D. C., for special duty, October 3, 1888.

STONER, G. W., *Surgeon*—Detailed as Chairman of Board to select a site for the Marine Hospital at Evansville, Indiana, October 5, 1888.

GOLDSBOROUGH, C. B., *Surgeon.*—Leave of absence extended fifteen days, on account of sickness, September 28, 1888.

SEATON, NORMAN, *Assistant Surgeon.*—Detailed as Recorder of Board to select a site for the Marine Hospital at Evansville, Indiana, October 5, 1888.

FATTIC, J. B., *Assistant Surgeon.*—To rejoin his station at St. Louis, Missouri, October 5, 1888.

MAGRUDER, G. M., *Assistant Surgeon.*—To proceed to Way Cross, Georgia, for special duty, September 15, 1888.

GEDDINGS, H. D., *Assistant Surgeon*—To proceed to Camp Perry, Florida, for special duty, September 15, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, OCTOBER 20, 1888. No. 16.

ORIGINAL ARTICLES.

THE DIAGNOSTIC SIGNIFICANCE OF THE MITRAL PRESYSTOLIC MURMUR.[1]

BY FRANK DONALDSON, M D.,
CLINICAL PROFESSOR OF DISEASES OF CHEST AND THROAT, UNIVERSITY OF MARYLAND.

THE characteristics of the typical mitral presystolic murmur are well known and ought to be easily recognized. It is a loud, long sound, rough and vibrating in quality, commonly with a well-marked thrill. It is audible over a fixed and limited position—the mitral area—a circle of about an inch around the point where the apex touches the thoracic wall; the direction of the sound being toward the apex. Its maximal intensity is to the right of the apex beyond where the blood current enters the ventricle. It may be heard indistinctly above the third rib and, very exceptionally, in other directions. Its rhythm is at the end of the long pause immediately preceding and abruptly ending at, and with, the first sound. The rhythm of the presystolic murmur, when the pulsations are slow, is easily recognized by feeling the carotid pulse while auscultating, because the pause before the first sound is much longer than that which follows it. But when the beats are more rapid the distinction cannot be drawn, for the increased pace is gained at the expense of the period of rest, and one pause may be as short as the other (Fagge). The designation presystolic is sufficiently appropriate, since the murmur immediately precedes the ventricular systole. These important facts show that it is found during the diastole of the ventricle. The closure of the sigmoid valves, the filling of the ventricles, and the contraction of the auricle, take place during this period of the heart's revolution. With the murmur we often hear pronounced accentuation of the first sound at the apex, and of the second sound over the pulmonary artery, and, also. when it has existed for some time, a reduplication of the second sound.

The blood in the lesser circulation rushes on through the distribution of the pulmonary arteries into the elastic pulmonary veins, thence directly onward through the auricle into the ventricle, continuing its flow until the ventricle, as well as the auricle, is nearly full, when suddenly the auricle contracts on its contents and completes the distention of the ventricle previous to its systole.

Ludwig and Hess showed that the mechanism of the closure of the left auricular-ventricular orifice does not reside in the valve alone; the surrounding muscles of the ventricle have an active share not merely in floating up the valve curtains, but in reducing the size of the aperture which these valves have to close. The papillary muscles keep the curtains tight during the contraction of the ventricle. The whole action of the heart is screw-like, six or seven distinct layers of muscular fibres crossing one another. The base muscles do their share of the work of closure, the valves promptly complete it. When the muscles of the base are enfeebled, the valve curtains are insufficient to close the orifice (MacAlister).

It is a mistake to suppose that the presystolic murmur is always the same. Usually it is the most prolonged of cardiac bruits. It may be very short; so short, indeed, as to be with difficulty separable from the natural first sound. Occasionally it appears like a tone or accentuation of the first sound. In this case the first sound becomes so sharp and clear that it may easily be mistaken for the second sound, which becomes inaudible at the heart's apex, and, unless careful attention be paid to the rhythm, there is danger that the murmur may be mistaken for the normal sound, instead of an abbreviated presystolic bruit.

It is a very variable sound both as to its length, its loudness, and its quality. It is heard at some times and not at others. It may, and indeed often does, follow immediately the second sound, and continue up to the culmination of the first sound, with which it suddenly ceases. It is generally more intense at the ending than at the beginning. Traube says that, if the action of the heart be retarded by digitalis, this murmur ends before the first sound. Flint states that only in one of his cases did the murmur cease before reaching the first sound. It often commences in the middle of the diastole with the auricular systole, and runs up to the first sound. Again, it lessens in volume at the middle, and, rising, ascends to its first intensity.

It sometimes becomes altogether inaudible in the middle of the long pause, and then reappears. In some cases there is an entire absence of a murmur, but instead we hear an accentuated clicking first sound.

[1] Read before the Association of American Physicians, September 18, 1888.

The name of post-diastolic is given, very inappropriately, to the murmur heard immediately following the closure of the sigmoid valves. This sound, though rough, is not blubbering and vibrating. It is generally indicative of pronounced stenosis. The diastole of the ventricle begins with the closure of the sigmoid valves. A bruit that immediately follows the second sound, which, it is admitted, is found at this precise period of the cardiac rhythm, ought to be designated diastolic without prefix of "post." These two murmurs, the presystolic and post diastolic, may be present independently of one another, and when found in the same patient may coalesce, or they may be separated by an appreciable interval.

Fig. 1.

Typical and other varieties of presystolic and post-diastolic murmurs. 1. First sound. 2. Second sound.
a. Presystolic murmur (typical).
b. Presystolic murmur united with post-diastolic.
c. Systolic (mitral insufficiency).
d. Post-diastolic, separated from presystolic.
e. Presystolic. *f*. Post-diastolic.
(After Sansom.)

Fig. 2.

1. First sound. 2. Second sound.
a and *b*. Continuous post-diastolic and presystolic murmurs.
c and *d*. Irregular presystolic.
(After Gairdner.)

Although much has been written of late about the presystolic murmur, yet all who have had much experience in consultations in cardiac cases will confirm the statement of Broadbent, that it is not infrequently, even now, entirely overlooked and often mistaken for the mitral systolic murmur, the differential diagnosis of which has been clearly established. Formerly it was supposed that the presystolic murmur was rarely found, but closer observation has shown that it is of frequent occurrence, especially among women and children. Flint observed it in sixteen out of thirty-nine cases of mitral disease. Its grave prognostic significance alone justifies the attention that has been given to it.

In this paper, I shall only detain the Association by a brief study of the factors entering into the production of this interesting murmur when of organic origin.

There must be two factors in the production of "fluid veins," whether they are obstructive or regurgitant: the lesion, and the propelling force, together with the other well-known influences, modifying blood pressure. For the generation of sonorous fluid veins, we must have the passage of a jet of blood forced through a narrow constriction into a wider cavity or part of a vessel.

It is acknowledged that mitral stenosis is the lesion in a very large majority of cases in which a presystolic murmur is heard. Many prominent authorities believe that this lesion is invariable. The constriction is frequently found at post-mortems in cases in which there had been no presystolic murmur detected during life.

The mitral valves and the auricular-ventricular orifice are specially liable, in early life, to valvulitis from acute or subacute rheumatism and other causes, such as scarlet fever, measles, or chorea. These leave formations of connective tissue which narrow the orifice itself in the annular forms or by diaphragmatic partitions with buttonhole orifices, or the leaflets adhere together and produce funnel-shaped constrictions. In some instances the valves lose completely their natural formation. These new conditions are most favorable to the production of murmurs, which are due to oscillations in the blood itself. The current of blood passes through a small opening into a wider cavity, and is divided up into a number of jets, forming fluid veins. The rapidity and force of the current must cause variations in the intensity of the sounds.

The obstructive lesion of the mitral orifice, it must be borne in mind, is of very gradual formation, of months or of years. It commences often insidiously. The auricular-ventricular orifice is so large that it can bear some lessening of its size without seriously interrupting the proper filling of the left ventricle. Thus stenosis may be sufficient to produce the vibratory sonorous murmur, without any marked subjective symptoms.

While admitting that stenosis of the mitral orifice is, in a very large proportion of cases, the pathological lesion met with where this murmur is found, yet there are numerous cases reported in which the mitral orifices were not altered in size, but in which other obstructive and narrowing conditions were found inside the ventricle—such as shortened chordæ tendineæ, thickenings and rugosities about the leaflets of the valves or in the walls of the ventricle, to account for the production of the characteristic prolonged, blubbering, presystolic murmur. Wherever and whenever we find physical conditions to produce "fluid veins" with vibratory phenomena, we can have the same sound. We need not recall Flint's three cases in which aortic insufficiency, as demonstrated at post-mortems, produced functional murmurs with the characteristics of the mitral presystolic murmur. Dr. Bramwell has published such a case, and Dr. Guitéras reported three. Sansom speaks also of cases somewhat similar to Flint's. Osler has had a well-marked instance.

The writer has never clinically met with such a case, but he has heard aortic diastolic murmurs where there were marked accentuation and shortening of the first sound, similar to the effects met with in cases of mitral stenosis. While it is true that such cases have been reported by the most competent auscultators, they are in fact but rarely met with. There is, however, no *a priori* reason why they could not exist. Aortic regurgitation murmurs are diastolic in time, and if, as Flint claims, the leaflets of the mitral divide the reflow current in the same manner as in the production of the murmur at the auricular-ventricular orifice, the sounds may be formed and a prolonged murmur of presystolic rhythm with the blubbering vibrations may be heard. Dr. Guitéras maintains that this functional presystolic mitral murmur is more frequently heard than Dr. Flint supposed. Balfour, Nixon and Sansom, and others think differently. There can be no doubt that the diastolic aortic murmur can be conducted to the apex by the solid walls of the hypertrophied ventricle, the current of blood itself as well as by the sternum and walls of the chest. The infrequency of these functional mitral murmurs, when there is an aortic insufficiency, is difficult to explain.

Dr. Balthazar Foster suggests an explanation of how this murmur is heard best at the apex: That different valves are affected in different cases, and that, if the left sigmoid near the mitral is affected, the blood falls directly back into the ventricle and the bruit is heard best at apex; whereas, if the right or posterior sigmoid valve is diseased, the regurgitant blood impinges on the septima and the bruit is carried down the right side of the heart. Dr. Guitéras maintains that these propagated murmurs are in fact mitral obstructive murmurs, and that they are more apt to develop when the posterior aortic segment is affected, because in such cases the recurrent stream is brought directly against the anterior leaflet of the mitral valve.

Dr. Bramwell (*Diseases of the Heart*) refers to a case of rupture of the posterior coronary segment of the aortic valves in which no presystolic murmur was audible. There must be some unusual physical condition which has not yet been appreciated.

There is also a murmur which Barlow, Leaming, Flint, and Donaldson have designated as intraventricular, which, when there is much hypertrophy of the left ventricle, seems to occupy the first portion of the systole. This resembles the qualities of the presystolic, and, when the heart is beating rapidly, may be confounded with it. Of course, in diagnosticating mitral stenosis, everything is taken into consideration, together with the murmur.

Let us inquire from what sources the necessary force of the blood-current is derived. Dr. Gairdner taught that it is produced by the systole of the left auricle, and he accordingly named the adventitious sound the "auriculo-ventricular murmur." This could not possibly apply to the sound which exists before the contraction of the auricle, which, in health, occupies one-fifth of a second of time, and immediately precedes the systole of the ventricle. The feeble force of the auricle in health was shown by Chauveau, who, by prolonged irritation, exhausted its contractility, and found that the ventricle continued to act effectively, and kept up the circulation. Ludwig confirmed this result by introducing a tube through the auricle. In fact, the auricle may be regarded as the dilated termination of the pulmonary veins, acting as a reservoir to supply the ventricle, and to regulate the blood-pressure in it. The auricular cavities are never completely obliterated during contraction, though this does not appear to be the case with the auricular appendages.

We may ascribe the production of the presystolic murmur, in beginning obstruction of the mitral orifice, to the force of the left auricle. Temporary compensation is promptly established in the force of the circulation. It seems that there is a reserved force, as in involuntary muscles, which is called forth in the emergency.

We further admit that, as the result of obstruction at the mitral orifice, impeding the influx of blood into the left ventricle during the diastole, the left auricle, having extra work to perform, does become first dilated and subsequently hypertrophied. Indeed, percussion, in rare instances, reveals abnormal bulging over the auricle, and frequently the pulsation of the auricle is perceptible about the fourth rib. The walls of the left auricle, which are normally about one and a half lines in thickness, may be increased to as much as a quarter of an inch, with proportionate augmentation in strength. It may be that the prolongation of this bruit is due to this hypertrophy, but it is almost incredible when we know that it is the longest, as well as the most irregular and vibrating, of all cardiac murmurs. We question whether it is a force sufficient by itself to overcome the resistance caused by advanced mitral constriction, and to give us the acoustic characteristics of the presystolic murmur.

It must be borne in mind that the auricular systole does not occur until the very last portion of the diastole, and the murmur often begins after the second sound, and includes the so-called "post-diastolic." These phenomena occur previous to the auricular systole. We readily admit that its influence is shown in reinforcing the intensity of these murmurs.

In mitral stenosis the auricular portion of the cardiagrams is of longer duration, and its tracing higher, because the left auricle is dilated, and contracts with force, emptying itself with difficulty; it often shows a series of wavelets, giving it a serrated appearance corresponding to the purring thrill felt

by the hand. Ott, Hess, and Galabin attribute the late closure of the pulmonary valves to the diminished elasticity of the artery in consequence of long-continued high pressure.

FIG. 3.

a Mitral stenosis. Pulse rate 80 (after Galabin).

b Mitral stenosis. Long, rough, presystolic murmur. Pulse rate 57 (after Galabin).

c Normal curve from man (after Landois).

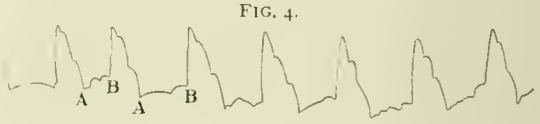
A B. Auricular systole. D. Aortic closure.
B C. Ventricular systole. E. Pulmonary closure.
E F. Ventricular diastole.

The cardiagram of the normal heart (see Landois's *Physiology*) proves that the aortic valves close a little before the pulmonic valves. They close, however, so near together that only a single sound is heard. In mitral stenosis (stage of non-compensation) the aortic valve closes sooner, and the pulmonic valves later than normal. This is because the left ventricle contains less blood, and the right more than normally. There results what is called a reduplicated second sound, which is an increase of a physiological condition. All conditions which cause the aortic valves to close rapidly (diminished amount of blood in the left ventricle), and the pulmonary valves to close later (congestion of the right ventricle)—both of which exist in mitral stenosis, favor the production of a reduplicated second sound, which occurs in one-third of the cases of mitral stenosis.

If mitral contraction occurs at a very early period of life, whether as a primary affection, or secondary to a corresponding narrowing of the tricuspid, other parts of the circulatory system become accommodated to it, and the patient may reach adult life before the lesion produces any symptoms—the post-mortem revealing the fact of the organic defect. Dr. Wilkes reports cases in which resulting hypertrophy of the right side in children was so great as to cause bulging of the chest, and in which the pulmonary artery partook of the hypertrophy, and became thicker than the aorta. On the other hand, cases occur in which, owing to mitral stenosis early in life, so small a quantity of blood is thrown into the left heart that there is imperfect nutrition of the whole body, which accommodates itself to the defect. Hypertrophy of the right ventricle and the left auricle compensates so thoroughly for the deficiency, that there may be no subjective symptoms, and no bruit, perhaps, beyond an imperfect first sound.

Dr. Gairdner did not ascribe the production of the presystolic murmur wholly to the muscular contraction of the auricle. Dr. Wilkes held that the murmur might anticipate the auricular systole, and that it might occur not only at that time, but also during the heart's diastole and pause. Dr. Galabin came to a like conclusion from the evidence afforded by the cardiograph. Dr. Sansom claims that the causation of the presystolic murmur may be independent of the auricle; he states "that in many cases he had observed that though there had been a prolonged presystolic murmur commencing in the long pause almost immediately after the second sound, cardiographic evidence has shown the auricular systole to occupy its normal position just anterior to the commencing contraction of the ventricle." He cites a case in which a murmur occupied at one time a portion and at another almost the whole, of the long pause, and the autopsy showed that the auricular systole could have had no share in producing such a murmur, for not only was the left auricle so dilated that its walls could have exerted no appreciable muscular power, but it was lined by a closely adherent, old, laminated blood-clot. It thus appears

FIG. 4.



Sansom's case, showing mitral stenosis, while auricular systole is in normal position. A B. Auricular systole.

that the post-diastolic murmur, as well as the presystolic, may be caused in the diastole, and be due to the entrance of the blood independently of the auricular systole, it being urged through the stenosed aperture, owing to the tension under which it has been retained in the elastic and distended auricle and pulmonary veins.

We feel justified in concluding that the systole of the left auricle is a factor of greater or less force in the production of this mitral direct murmur, but it is not the only one, and the others may produce it independently of the auricular systole.

Negative pressure. Let us see whether any negative pressure is brought to bear upon the left auricle and pulmonary veins to assist in getting the current into the left ventricle. Is there any suction action of the left ventricle of the heart? Until the publication, in 1878, of Goltz and Gaule's experiments, the majority of physiologists attached little or no importance to any suction action of the heart, although in all times there have been zealous advocates of the doctrine that diastolic suction was an important factor in the circulation. Goltz and Gaule, by the use of ingeniously constructed maximum and minimum manometers, determined the maximum and minimum pressures in the left and in the right ventricle. They found with natural respi-

ration, in the left ventricle of a dog, a negative pressure of 52 mm. of mercury. In the right ventricle there existed, in another case, a negative pressure of 17.2 mm. of mercury.

In accordance with the generally accepted ideas, they at first were inclined to attribute this negative pressure to the expansion of the chest during inspiration. To their great astonishment, however, they found, after the chest was opened, and independently of respiration, a negative pressure in the left ventricle of 23.5 mm. of mercury. This latter negative pressure, therefore, cannot be due to the elastic traction of the lungs. They attribute it to the elastic resilience of the ventricle following the systole, like that after compression of an elastic balloon. They say: "The adherents of the doctrine, according to which the heart acts as a suction-pump, will find their boldest expectations surpassed when they hear that the suction force of the left heart of a large dog, at the beginning of the diastole, is equal to a column of water 320 mm. (23.5 mm. of mercury), and that this force in a healthy man is probably even much higher." (Goltz und Gaule: "Ueber die Druckverhaltnisse im Innern des Herzens," *Pflüger's Archiv*, 1878, Bd. 17, S. 100.)

In 1879, Moens published an article ("Die erste Wellengipfel in dem absteigenden Schenkelder Pulscurve," *Pflüger's Archiv*, Bd. 20, S. 517, 1879), in which he attempted to show that the negative pressure found by Goltz and Gaule existed, not during the diastole, but during the systole. In order to make clear how a negative pressure might be produced at this period of the heart's action, he takes an elastic tube open at one end and connected at the other by means of a stopcock with a pressure-bottle. If the stopcock be suddenly closed while the fluid is flowing from the bottle through the tube, there is a negative pressure produced in the tube, beginning near the stopcock. Likewise, in the left ventricle, he argues that, as the blood is shot out by the ventricular contraction into the aorta, a negative pressure is produced in the ventricle. His chief inference, that the negative pressure is present during the systole and not during the diastole, was because a minimum manometer, passed down the jugular vein into the superior vena cava, failed to register negative pressure, as would be the case if the right ventricle exerted diastolic suction. He regards this experiment as proving that the negative pressure is not during the diastole, otherwise there would be a suction force exerted on the blood in the right auricle and vena cava superior. If the negative pressure is not during the diastole, it must be during the systole.

It will be observed that Moens does not actually demonstrate that the negative pressure is during systole. He infers it indirectly. On the other hand, he seems to have overlooked the fact that Goltz and Gaule found a negative pressure in the right auricle of 11.2 mm. mercury (this might have been due to inspiration), the negative pressure in the right ventricle, in the same case, being 17.2 mm. mercury. Moens is quoted by Martin and Donaldson, Jr., as having shown that the negative pressure exerts no suction force on the blood in the auricles.

In consequence of the doubt which Moens's work raised as to the period at which negative pressure existed in the ventricles, de Jager, in 1883 ("Ueber die Saugkraft des Herzens," *Pflüger's Archiv*, Bd. 30, S. 491), published experiments on this question, and came to conclusions in opposition to Moens's and in confirmation of Goltz and Gaule's. De Jager determined that the pressure at the beginning of the aorta never becomes negative, as it should be in case the negative pressure in the ventricle were due to the suction of the column of blood poured out from the ventricle. He also found that with the chest open, so that the action of inspiration on the aspiration of blood into the right heart was removed, the pressure in the right auricle becomes negative. He found negative pressures in the right auricle of 2 mm. to 6 mm. mercury. He does not believe that the auricles themselves are capable of exerting any suction force, and he, therefore, concludes that this negative pressure in the right auricle can be interpreted only as evidence of a suction exerted by it, which, of course, can occur only during diastole. The same conditions would, of course, obtain for the left cavities of the heart, as the experiments were made with the chest open. De Jager, therefore, concludes that a strong diastolic suction force is exerted by the ventricles.

As regards the causes of this suction force he mentions several possibilities, without coming to a decision. These possibilities are:

1. The elastic force developed during the systole, as in the compression of a rubber balloon.

2. The suction force on the exterior of the heart resulting from the negative pressure in the thorax (or the elastic traction of the lungs). This, of course, can be only one element, as negative intraventricular pressure is found after the thorax is opened.

3. Shortening of the large arteries coming from the heart.

Brucke inclines, as do Goltz and Gaule, to consider these factors as the essential ones.

Gruenhagen holds that Goltz and Gaule and de Jager have established the fact of a diastolic suction action of the heart.

The experiments of Martin and Donaldson, Jr., however, on the mammalian heart, at the Johns Hopkins University, are opposed to the existence of any suction action of the heart. Their experiments are exact, and, it would seem, quite conclusive

against the suction theory. It is difficult, however, at present, to reconcile them with Goltz's, Gaule's, and de Jager's experiments. They have the merit of putting the matter to a direct test, whereas the other experiments do not actually demonstrate a suction action, but leave it as an inference. They say:

"The negative pressure proved by Goltz and Gaule to occur in the ventricles for a brief period at the end of the systole, had already been shown by Moens not to affect the auricles, and, therefore, to be without effect in making the heart a suction pump as far as the venous system was concerned.

"Once the 'aspiration of the thorax' has been eliminated, the right auricle of the mammalian heart will not receive blood unless supplied to it under a decided, if small, positive pressure. While the heart in the closed thoracic cavity may, and probably does, act as a suction pump, this is not due directly to an active expanding force of the heart, but is the secondary result of the pneumatic conditions prevailing within the normal closed chest cavity."

If a suction action exists, it is evidently a factor not to be neglected in the study of mitral stenosis. All that increases the suction action, increases the force with which the blood passes through the narrowed mitral orifice and doubtless increases the murmur. De Jager found that when the action of the heart became feeble—as after long exposure, or by cooling, or by loss of blood—then only a slight negative pressure, or none, was produced in the ventricles. We may, therefore, infer that all circumstances which enfeeble the action of the left ventricle diminish correspondingly the force of suction, and, therefore, the murmur. Such circumstances are failure of the heart's force from any cause, among which may be noted atrophy of the left ventricle in pure mitral stenosis. In general, whether the left ventricle is atrophied or not, the small amount of blood which it receives through the narrowed mitral orifice during non-compensation must be attended with a weaker systole, and, consequently, diminished suction and lessened murmur. All this line of argumentation, of course, is not pertinent, if we accept the doctrine that no suction force is exerted by the ventricles.

Let us further inquire whether any other force is connected with the passage of the blood through the left ventricle. We hear of the blood's passive flow through the mitral orifice. Has it no power? The right ventricle, which propels its contents with a strong wave through the pulmonary arteries and with comparative ease, owing to the absence of tonus or resistance, and of vasomotor influence to contend against, forces the blood into the pulmonary veins and through the left auricle into the ventricle. If it meets with any obstruction, the backward pressure would, of itself, add to the onward blood pressure in the pulmonary veins, although the right ventricle promptly exerts its reserved compensatory force. If the obstruction continues, the extra work of the right ventricle gradually produces permanent hypertrophy which keeps up the compensation. When this is broken, there results the disastrous backward flow of venous blood with all its unpleasant consequences upon the lungs, liver, and other internal organs. This occurs, notwithstanding the protection afforded to the process of intra-pulmonary respiration, as shown in the safety-valve construction of the tricuspid valve (King), of the pulmonary semilunar valves (Flint, Jr.), and of the obstruction safety-valve principle of the pulmonary valve (Guitéras). The increased tension at the pulmonary valves gives accentuation of the second sound. Nature further provides a relief to the lungs by the increased capacity of the right cavities by from one-tenth to one-third over the corresponding cavities of the left side.

The right ventricle becomes very gradually hypertrophied. In some cases the enormously thickened walls completely cover the left ventricle and prevent our hearing the second sound at the apex and a very feeble impulse is noticed. The left ventricle, owing to the insufficient supply of blood through the auricular-ventricular orifice, is often not only not hypertrophied, but actually materially lessened in size—indeed, in a state of atrophy, unless there is also insufficiency of the mitral orifice as a complication. This additional lesion may cause hypertrophy of the left ventricle. May not the powerful right ventricle, by the blood pressure it causes in the pulmonary veins, be a prominent factor in causing variations in the length and intensity of the post-diastolic and the presystolic murmurs in mitral stenosis?

If this hypertrophy be very marked, may it not be the propelling force producing the long sound commencing immediately after the systole and occupying the whole of the diastole? If the force be feeble, it may only produce the post-diastolic and cause the deficiency in the middle of the distance between the second and first sound. When the patient is in the recumbent position and the heart is quiet the murmur is often inaudible; on changing the position it may be heard. Active exercise increases in marked degree the intensity of the murmur. When dilatation succeeds, hypertrophy of right ventricle and tricuspid insufficiency take place—the forces are not powerful enough to cause the murmur. The auricular systole, if dilatation has not made the walls too feeble, may give rise to the presystolic. The increased power of the hypertrophied left auricle and right ventricle certainly would cause the fluid veins to be audible vibrations in obstructive mitral disease. As the muscular power leaves the excessively enfeebled patient, the sound utterly disappears. Indeed, it is very remarkable how the murmur sometimes dis-

appears, temporarily or permanently, the condition of valve being unaltered.

To sum up (says Dr. Galabin, in his elaborate and able paper on, "Interpretation of Cardiographic Tracings," *Guy's Hosp. Reports*) the inferences suggested by a general review of all the tracings, it appears that the evidence of the cardiograph is in favor of the view that two totally distinct murmurs may be caused by mitral contractions: first, the auriculo-systolic bruit, which may either run up to the first sound or be separated from it by a short interval; and, secondly, a diastolic bruit, due to the venous flow through the narrow and roughened orifice, which in rare cases may be blowing in quality and separated from the succeeding systole by a long pause; and that, thirdly, these two may be merged together into a compound murmur somewhat rough from its commencement, but much intensified in loudness and harshness toward its conclusion.

Marey, in some experiments by means of which he reproduced the various sounds and murmurs of the heart, the auricle of which was not contractile, introduced a plug perforated by a hole between the auricle and ventricle, and then found that a diastolic murmur was produced, but only when the auricular pressure exceeded a certain point. Hence, he concludes that the murmur of mitral stenosis may be either diastolic or auriculo-systolic according to circumstances.

How far is our estimate of the pressure in the pulmonary veins justified by experimental research? From this source we possess but little positive knowledge. Beutner seems to be the only authority who has published any actual measurement of the blood pressure in the pulmonary veins. He found a positive pressure of 10 mm. of mercury in the pulmonary vein of a cat. In the pulmonary artery of a cat he found a pressure of 17.6 mm. mercury. These pressures were, of course, measured with the thorax open, so that we cannot attach absolute value to them. They indicate however, that, relatively to the pressure in the pulmonary artery, the pressure in the pulmonary vein is high, the pressure in the veins being more than one-half that in the artery. The pressure in the pulmonary vein, according to Beutner's measurement, is, moreover, absolutely a high one when compared with the very low pressure in the veins emptying into the right auricle. The pressure which Beutner found in the pulmonary artery is much lower than has been found by subsequent observers. The accepted belief is that the pressure in the pulmonary artery is one-third of that in the aorta; Goltz and Gaule regard it as two-fifths of the aortic pressure. If the ratio which Beutner found between the pressure in the pulmonary vein and that in the pulmonary artery holds true, then we may conclude that the pressure in the pulmonary vein is even higher than his observations indicate.

Inasmuch as actual measurement of the pressure in the pulmonary vein can be made only when the thorax on one side is open, the question arises: What influence upon this pressure has the elastic resilience of the lungs under the normal conditions of respiration? If the walls of the pulmonary artery and those of the pulmonary veins were of the same thickness, then, inasmuch as both vessels were subjected to the same intra-thoracic pressure, it is evident that changes in the intra-thoracic pressure, corresponding to the different phases of respiration, would not influence the blood pressure. The walls of the pulmonary veins, however, are thinner than those of the pulmonary artery, therefore the aspiration of the thorax must tend to lower the pressure in the pulmonary veins more than in the pulmonary arteries. It is impossible to say how great is this influence of the elasticity of the lungs upon the pressure in the pulmonary veins.

The feeble tonus of the vessels in the pulmonary circulation is of the utmost importance, as changes in pressure in the pulmonary veins are quickly manifested in the pulmonary arteries and *vice versa*. This circumstance justifies us in assuming that change of pressure in the pulmonary artery is attended by corresponding changes of pressure in the pulmonary veins, so that changes in the force of contraction of the right heart exert a much more direct influence upon the circulation of blood in the pulmonary veins than in the left heart and the systemic veins.

Cohnheim says: "The blood in the pulmonary veins is, under physiological conditions, not like that of the systemic veins under negative pressure when it enters the heart, but is under a positive pressure which is only a little less than that of the blood in the pulmonary artery." (*Vorlesungen, über allgemeine Pathologie*, Bd. 1, S. 28, Berlin, 1882.) This statement of Cohnheim does not seem to rest upon actual measurement, but to be based upon the slight resistance offered to the blood in the passage from the pulmonary artery to the pulmonary vein, and upon Beutner's measurement with open thorax. He found the pressure in the pulmonary vein more than half that in the pulmonary artery. As no means have been found which enable us to measure the pressure in the pulmonary veins under natural conditions, we are left to such inferences as the above.

PERSONAL OBSERVATIONS ON SKIN DISEASES IN THE NEGRO.[1]

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The study of skin diseases in the negro offers some points of interest which it may perhaps be well to

[1] Read before the American Dermatological Association at the Congress of American Physicians and Surgeons in Washington, 1888.

note in order that the attention of those among us who come into contact with this race may be called more particularly to the difference of the lesions as compared to the white race.

A difference in the symptoms and general appearances would, from the nature of the race, suggest itself before experience had taught one the fact. In a dispensary such as the one here quoted from, where fifty per cent. of the skin cases are black or modifications of black, an opportunity is offered for close observation of certain peculiarities which deviate from the ordinary or orthodox symptoms seen in the whites. It may be due to this race that the American dermatologist is so often quoted as saying there is a difference between skin diseases in America and in Europe. The negro race does present a modification of such diseases, thereby rendering the total average of skin symptoms somewhat different to the European stereotyped forms, but when considering the white race the specialist, from my own observation, meets the same diseases here as there, leaving out of the question those which are rarely, if ever, seen in this country.

There is, however, something in the appearance of skin diseases in the black race which might confuse an European specialist who was unaccustomed to seeing them, for they seem to be less liable to skin diseases of a severe type than the whites. They suffer in the aggregrate as often, but far less severely. Their skins are less sensitive to heat, poisons, irritants, nervous lesions—disease of the nerves being a theoretical method of explaining unknown causes—to constitutional or to general influences.

My attention being attracted by such differences, notes were begun by which a more careful comparison could be made over a series of years and a certain number of cases. In the record made on the dispensary books the color of the patient was noted, whether dark or light—that is, whether true black or mulatto, and they have thus been kept for three years, making a sufficient number to show by percentage and histories wherein the differences have presented themselves to me.

It is hardly necessary to state that the normal skin of the black race is histologically more coarse and thick than that of the white. It is composed of more dense fibrous tissue, the glands are larger as are also the nerves and vessels running into the papillary layer. The epidermis is thicker and slightly yellowish in color, thereby adding somewhat to the general color of the skin. The blackness of the pigment granules determines the color of the skin, there being no appreciable difference in the thickness of the pigment layer between the true black and the mulatto. There are fewer elastic fibres in the negro skin and more subcutaneous adipose tissue than in the white. The nerves, though larger, are less sensitive both to external and internal agencies. These histological differences may help to explain the modified symptoms which their skin diseases present.

I have tabulated, for the purposes of comparison, 500 cases of each race—the black and the white—and shall run over each disease as it comes up alphabetically. These cases were taken from the last three years of the dermatological clinic of the Baltimore Polyclinic and represent all the cases without exception up to 500 which have been recorded within that time.

The table of the blacks is divided into those who are black or true negroes and those who are mulattoes. I consider this an important division, as most generally the nearer the color approaches to white the less difference there is in the lesions.

The first disease on the list is *Acne*. Acne in the black is a rare disease. Out of my 500 cases only 9 are acne and they all were mulattoes. The white list shows 39, which is four times as many. Out of all the cases of the negro seen in private or public practice and of all the negroes purposely noticed in passing, it has been rare to discover an acne in the black. I have had only one case in private practice.

Table of 500 Cases of Whites.

	Male.	Female.	Total.
Acne	22	17	39
Alopecia areata	...	1	1
Angioma	...	1	1
Chancre	4	1	5
Chilblain	3	...	3
Chloasma	...	2	2
Dermatitis ven.	2	4	6
Eczema (acute)	68	92	160
" (chronic)	12	13	25
Elephantiasis Arabum	...	1	1
Epithelioma	2	1	3
Erysipelas	...	5	5
Erythema multif.	4	3	7
" nodosum	...	1	1
" papulat.	...	2	2
" urticans	...	2	2
Favus	1	1	2
Furunculosis	3	4	7
Herpes	...	4	4
" zoster	13	4	17
Ichthyosis	1	1	2
Impetigo contag.	3	9	12
Lichen planus	3	1	4
Pediculi	4	1	5
Prurigo	3	...	3
Pruritus	2	3	5
Psoriasis	11	15	26
Purpura hem.	1	1	2
Scabies	5	6	11
Sycosis non par.	2	...	2
Syphilis, secondary	21	19	40
" tertiary	13	18	31
" congenital	4	4	8
Tinea tonsurans	8	6	14
" versicolor	5	3	8
Tylosis	...	2	2
Ulcer (syphilitic)	7	8	15
" (varicose)	...	3	3
Urticaria	4	7	11
Varicella	7	1	8
Verruca	1	...	1
Vitiligo	...	1	1

Table of 500 Cases of Negroes.

	Black.		Mulatto.		Total.
	Male	Female	Male.	Female	
Acne	...	...	2	7	9
Ainhum	2	...	...	...	2
Chancre	...	...	1	1	2
Chilblain	2	3	3	2	10
Chloasma	...	3	...	...	3
Elephantiasis Arabum	...	2	...	...	2
Erythema multif.	...	2	...	...	2
" nodosum	..	...	...	2	2
Eczema (acute)	18	22	24	32	96
" (chronic)	6	20	3	4	33
Favus	2	...	...	...	2
Furunculosis	...	...	...	2	2
Herpes	...	...	4	6	10
" zoster	1	1	...	2	4
Impetigo contag.	2	2	1	4	9
Keloid	...	3	..	...	3
Lichen scrofulosus	1	...	...	...	1
Lupus vulgaris	...	2	...	...	2
Lymphadenitis	...	...	7	8	15
Measles	...	1	...	...	1
Molluscum contag.	1	...	...	...	1
Pediculi	6	4	2	...	12
Pruritus	9	15	...	...	24
Psoriasis	2	...	...	4	6
Scabies	2	3	...	1	6
Seborrhœa cap.	...	2	2	8	12
Sudamina	1	...	...	...	1
Sycosis non par.	1	...	...	...	1
Syphilis, congenital	...	...	5	...	5
" secondary	20	20	35	16	91
" tertiary	12	5	3	2	22
Tinea tonsurans	15	16	6	5	42
" versicolor	...	...	...	2	2
Ulcer (syphilitic)	3	4	4	1	12
" (varicose	1	3	...	...	4
Urticaria	1	2	6	8	17
Varicella	2	...	8	12	22
Verruca	3	5	...	...	8
Vitiligo	2	2	...	...	4

It appears in a mild punctate form, does not become indurate, and is easily cured by local applications. Itching accompanies it, according to the statement of the patients. No cases of rosacea, of rhinophyma, or coachman's nose, were seen.

The diagnosis is easy, differing from the punctate form of the whites only in the color of the surrounding skin and in the absence of redness in the papules.

Ainhum is a disease of the negro race and the two cases reported were both in black negroes who were sailors. One of them had previously lost the little toe of the left foot, he being now troubled with the disease in the little toe of the right foot. There was no history of self-mutilation. They seemed both above the average negro in intellect.

Chancre presents no differences excepting in the amount of induration, which is greater in the negro. One of those reported here and one of those reported in the white list were upon the upper lip of a female.

Chilblain is a common disease in the negro. It is less intense in the inflammation than in the white, but there is more itching and it is more chronic. In this record of ten cases there is no difference between the frequency of it in the black and in mulattoes. It seldom is so troublesome as to call for a physician's advice, but there are few negroes who will not say when asked, as I have found, that they are martyrs to chilblain.

Chloasma is a common disease in negro women. Few think it necessary to undergo treatment for it, but I have often noticed it when they come for some other trouble. Its appearance is that of a loss of pigment. In the black woman there is a yellowish spot on a dark back ground. Treatment is consequently reversed: we must produce pigment not abstract it.

Elephantiasis Arabum in the negro in this country usually follows syphilis, as in the two cases here observed. One of these was diseased in both vulvæ, which were finally removed by the knife. An interesting arrangement of the pigment in the histological specimens made from this case was reported previously by the author in The Medical News of April 23, 1887.

Erythema multiforme appears in small or large spots without redness, but with burning and itching which so much overshadow the other symptoms that doubtless many cases are overlooked. There has been such violent scratching as to produce a confusion in diagnosis. The cases here reported were in their incipiency, on the back of the hands and arms of two black females who washed for a living. The patches were slightly indurated raised above the surrounding skin, different in size, whitish upon their surface, and rendered pale upon pressure. In places there was evidence of scratching and rubbing, so that some of the patches were obscured.

Erythema nodosum is represented by two mulatto women and was situated upon the legs below the knees. The nodes were raised, copper-reddish, large, indurated, painful, and itching. They disappeared promptly under tonic treatment. The pain in these cases was less than in the whites, but the itching greater.

Eczema. Acute eczema is much less common and much less severe in the negro than in the white race. Out of 500 cases there were recorded 96, which is about 19 per cent. This is a much smaller percentage than is usual, for we see out of the 500 whites there are 160 acute eczemas, which is about 30 per cent. of the whole, the usual percentage in dispensaries. Looking at the record more closely, we notice that there are fewer cases among the true negro than the mulatto—40, or less than half, being dark. The majority of cases reported among the dark females are due to washing and are localized upon the hands.

I have no case of acute universal eczema recorded among the dark male or female. There are favorite situations for it to appear in this class, such as the instep or heel, the back of the hand, the neck, the knee-joint, and armpit. It appears in spots, dry and scaly, with a grayish-white, dirty-looking, thin crust covering them. They differ in size, from a ten-cent

piece to twice the size of one's hand. They itch constantly, but not intensely. They have the appearance of spots of dust upon a black coat, which may be brushed off. E. rubrum, papulosum, or vesiculosum universale I have not seen among them. The babies, however, do sometimes have a modified form of milk-crust, which approaches nearly to an ordinary moist eczema.

Among the mulattoes there is little difference between them and the whites in their symptoms. Their babies suffer from milk-crust just as frequently, and they themselves pass through an attack of acute eczema in the same way. They seem, however, more amenable to treatment, and less liable to intense itching than the whites.

In chronic eczema we find that the black negro outnumbers the mulatto. Of the 20 black females, 15 have washerwoman's eczema of the hands, the other 5 being spots upon the head or neck. The men have had theirs produced by oyster shucking or other occupations. These eczemas take on a form of keratosis, which nothing but change of occupation will cure.

Chronic eczema in the mulatto does not differ from that of the whites, other than that the itching is less acute.

Favus is rare in the negro. The short wool which covers the head, and which, even in babies, is, according to their custom, most often kept closely shorn, accounts for this fact. The parasite does not get a chance to grow. It is easily got rid of by treatment.

Furunculosis is a disease which is apparently infrequent in the negro, although the smallness of the number in this record is probably due to the fact that such cases are turned over to the surgeon.

Herpes facialis is a common disease among negro babies; so common that it is rarely thought necessary to consult a physician. It is, to a great extent, produced by the so-called "sugar-teat" which pickaninnies are allowed to suck constantly. The "sugar-teat" is a piece of fat bacon dipped into brown sugar or molasses, and wrapped in a piece of old linen cloth. This form of herpes takes the place of milk-crust in the negro, and is the only form of simple herpes here recorded.

In *herpes zoster* the pain preceding the eruption in the black is less severe, and less prolonged than in the white. There is decided itching rather than pain or burning, and when the vesicles appear they are white, on a black, somewhat indurated ground, containing the usual quality and quantity of serum. They sometimes leave—as in one of the cases here reported—pits, with loss of pigment, which last the rest of life. Slight keloidal growths sometimes follow in the wake of the largest vesicles.

The symptoms of *impetigo contagiosa* are indistinct, and not so characteristic as in the whites. The eruption is not profuse; there is little or no coalescing of pustules. There is considerably more itching, and the crusts formed after scratching are more yellow. Upon their removal they disclose a slightly reddish, glossy surface, which soon heals, leaving for a while a whitish spot. It is not very contagious, and it may be confounded with herpes in diagnosis.

Keloid. Negroes are much more prone to keloid than the whites. Two of the cases here reported were the result of smallpox, the keloidal growths surrounding the pits, making a network of hypertrophied eschars resembling the surface of a raised map. Such a result is not uncommon after smallpox in the negro. The third case reported followed piercing of the ears for ear-rings, and the size of the growth was gradually increasing. All these cases were in the black or true negro. Keloid in the mulatto is almost as rare as in the white race, and it does not grow with such rapidity as in the black.

Lupus appears to be uncommon in the negro. In view of the fact that this disease is now called tuberculous, it seems rather incongruous. The negro is supposed to be especially susceptible to tuberculosis. He lives in a meaner and far less healthy hygienic condition than his white neighbor; the moral tone and promiscuous intermingling of the sexes are not conducive to strength of body or cleanliness of the skin, and yet a disease like lupus, which is apparently the outcome of such poor surroundings, is rarely seen among them. One of the cases recorded was that of a black girl, nineteen years old, whose cheeks, nose, chin, and lips were diseased. The mucous membrane of the nose and pharynx was also affected. Spooning and cauterization resulted, as might have been foretold, in the formation of a keloid half an inch wide, occupying the outer edge of disease upon the cheeks. Progress in this direction was stopped, while the rest of the surface within the keloidal circle has from time to time broken out afresh.

By the application of mercurial plasters and the use of electrolysis the keloid has been diminished to one-third its former size. There is a curious-looking white line an eighth of an inch in width stretching along the outer border of the keloid and the tubercles of the diseased portion heal by leaving a whitish spot behind. The patient is a large, robust, otherwise fine-looking young woman without any symptoms of tuberculosis elsewhere.

Lymphadenitis. Universal enlargement of the glands is very common in the mulatto, not so much so in the black. It is more common in both than in the white race. The lymphatic glands and vessels are histologically larger and are easily affected by an inflammation. Being liable to glandular enlargement from slight causes other than syphilitic such enlargement does not mate-

rially assist in making a diagnosis of specific or of syphilitic disease. The cervical, inguinal, and other superficial lymphatic glands of young healthy negro children are often quite prominent and remain so during life. Suppuration is slow, while absorption of an enlarged gland by any means tried is seldom successful.

In the case of *molluscum contagiosum* observed the disease was upon the scrotum and penis, resembling the same disease in the white excepting that the contents of the small tumors were darker in color and mixed with pigment granules. Whitish spots remained for a while after the removal and healing of the tumors.

Pediculi. For the same reason that favus is rare—that is, because the head is so closely shorn, do we seldom see head-lice in negro children or men. The lesions produced by body-lice are slight and oftentimes unnoticed by the one bitten. The black man is somewhat impervious to the louse bite as he is to bed-bugs and mosquitoes. The poison of these venomous insects seems to be lost on the ebony color and texture of their skins.

Pruritus. Under this head I place all the troubles of the skin in the negro in which there is itching but no visible eruption. Apparently they have some of the diseases which white people have only in this form. It is very common to hear them complain of what they call an "eetching in the blood." When uncovered there is nothing to be seen but a rough black skin which feels hard and dry. The surface has lost its gloss and its elasticity is lessened. This condition of the skin I have only seen in the black, not in the mulatto. It is most often localized in such places as the front of the arms and legs and sides of the abdomen. The itching is constant, but not severe enough to cause traumatic scratching. The troublesome places are rubbed with the hand, seldom scratched. It does not fly from spot to spot, does not interfere with the occupation, and is most worrying at night. The treatment, which consists of hygienic measures combined with friction, is efficacious and seems to point to the cause as lying in an extra accumulation of effete epidermic cells.

In *psoriasis* the spots are covered with a more yellowish, less shiny crust than in the white. When punctate the crust is thicker than usual and is easily rubbed off. It then leaves a deep red, bleeding surface, the blood oozing freely from the minute vessels. As in other diseases of this race in which there is a sufficiently thick amount of epidermis removed, a white spot remains for a while after healing. In the orbicular form—as in one of the cases reported—many of the larger spots could still be seen after many years. It is not a common disease of the black and is easily cured. I have seen no relapses, nor had there been previous attacks as far as could be found out.

Scabies. Most of the cases of scabies which come to my dispensary are either imported by emigrants or caught from them. As there is little intercourse between blacks and whites there is little chance of transferring the itch mite from one to the other. The four females reported here thought they caught it from washing the soiled clothes of white people. The two men had just returned from oyster-dredging on the Chesapeake Bay, where whites and blacks are mixed promiscuously and where ignorant foreigners are enticed before they know what a terrible life is before them.

The lesions produced by the itch mite in the negro are modified when compared to the whites. There is less inflammation, less excoriation, and the number of burrows fewer and shorter than in the white.

Seborrhœa capitis is a common disease of negro women, and is so common that they very seldom consult a physician for it. If, however, the heads of black women who present themselves for other troubles be looked at, it will be seen, according to my experience, that about fifty per cent. of them have a pityriasis with a collection of yellowish-looking crusts upon the scalp, with a line marking the limit of trouble at the edge of the hair growth. Want of cleanliness is the cause, and it is in such heads that pediculi are found in the negro women.

Syphilis. This disease in the negro offers many striking points of difference when compared with it in the whites, but time will hardly allow of more than the noting of a few salient points at present. It is a subject worth an especial study at some future day.

The time of incubation, or the time between the exposure and the appearance of the chancre, is generally less than in the white. The chancre is larger, more indurated, less painful, more apt to produce phimosis—if in the proper situation—and remains longer. The inguinal glands become more enlarged and are more prone to suppuration. The secondary eruption is most often macular, sometimes papular or tubercular, rarely orbicular or ulcerous. The eruption may easily be overlooked, as there is no redness. The spots are slightly lighter in color and sometimes resemble closely the lesions in herpes tonsurans maculosus. Accompanying the eruption the patients complain of an itching and usually there are signs of scratching present. The mucous membrane of mouth, nose, and throat is usually diseased, and the lymphatic glands universally enlarged.

The tertiary stage is more sure to follow, as the negro is subject to nodes, gummata, chronic ulcers, and the various other syphilitic sequelæ. In summing up its usual course in the negro I should say the disease was more prompt in its first stage, less violent in its second, and more obstinately lasting in its third.

Tinea tonsurans will be seen, from this record, to be common with the negro, as it numbers over eight per cent. of all. The disease, whether in ring form or spots, differs from that in the whites in not having a surrounding red color. The scales appear more white upon the pigmented surface. There is slight itching and it seems to be more easily conveyed from one negro to another, or, at any rate, it runs through a family of them more promptly. Treatment is, nevertheless, sure, quick, and satisfactory.

Urticaria in the black negro is a mild disease. The wheals are not very distinct, not much raised, there is no redness in their periphery, their centres are lighter in color than the rest of the skin. There are some burning and itching, but the linear stripes, so easily produced in whites by the nail, were not visible in the cases here reported.

Verruca.—Warts are common among the blacks. They are usually large papillomata, which must be energetically treated to be got rid of. They seem less frequent than fibroma in this race.

There is only one more disease which I wish to mention, and that is *dermatitis venenata*. It will be seen by the chart that there are no cases reported of it in the negro. I have not yet seen a case of what is called poison oak in this race. Several times I have asked country negroes if they have ever seen colored persons poisoned with poison oak.

The answer has been, "Yes, sah; lots of them." When asked if there was any eruption, they said: "No, sah; der isn't any ruption, but der's an awful eetching in dee blood."

Now, from what I have seen of negroes, I do not doubt that many times the itching is the only symptom which indicates any trouble of the black skin.

Not to carry this simple *résumé* too far, I wish only to remark that it seems to me probable that the pigmentation of the skin is the prime factor in causing the diseases of the skin in this race to differ from those of the white.

Whether any practical result in treatment may be obtained by following out and confirming this supposition must be left to a larger experience and to still closer observation.

HYPNOTISM AS A THERAPEUTIC AGENT.

By G. J. PRESTON, M.D.,
of Baltimore.

Hypnotism, using the term to embrace the various states known as mesmerism, braidism, magnetism, etc., has passed through a great many phases. Omitting, for the sake of brevity, its application by the religionists many centuries ago, we find Mesmer using it as a therapeutic agent. In 1779 he published his book, *Mémoire sur la découvêrte du magnétisme animal*, in which there were many absurd theories and unsubstantiated facts. Shortly after this the Société Royale de Médecine made a report on the subject, condemning it in very strong terms. Mesmer, however, had a number of followers, one of the most illustrious of whom was Puységur, who continued to investigate the subject in the half light in which his master, Mesmer, had worked.

Without mentioning the names of many who, during the next half century, were enthusiastically studying hypnotism, we pass to Braid, of Manchester, who, in 1841, definitely formulated the doctrine of suggestion. He repudiated entirely the "magnetic fluid" theory of Mesmer and his school, and, while he wandered a little into the then popular doctrine of phrenology, in the main his investigations were scientific and correct. In 1848, Grimes, of New England, and, in 1850, Dr. Dods, also an American, were active promulgators of this science. Almost all these men were physicians, and hypnotism was constantly employed for therapeutic purposes. Mesmer reports numbers of cases cured by this means. Unfortunately, there was so much of error in his conception of the subject of hypnotism, and his enthusiasm, amounting to a sort of fanaticism, was so great that it led him to apply his newly discovered remedy to every class of cases. Still he reports cures, of the verity of which there can be no doubt.

Braid treated many cases of hysterical paralysis, contractures, and the like, by what was really suggestion. Not understanding thoroughly the nature of suggestion, he was accustomed to practise a sort of massage upon the affected limb, while the patient was hypnotized, thus, of course, making a suggestion, which can be done as well by a simple affirmation of the hypnotizer. At this same time Dr. Esdaile, an English surgeon in the hospital of Calcutta, was employing hypnotism very generally. He wrote to Braid that in six years he had done more than six hundred capital operations while the patients were under the influence of the magnetic sleep. So much for hypnotism in the hands of its early advocates.

While interest in the subject flagged very greatly, it was never entirely lost, and from the early periods of the discovery of the science, if it may be so called, until the present, there have not been wanting faithful students of its phenomena. The revival of hypnotism which took place in France a few years ago, like most revivals, has been carried on with very intemperate zeal. Statements have been made as to the wonderful power of suggestion, and so-called facts put on record, that are quite worthy the day when hypnotism was regarded as a mystic art, containing something of the supernatural. One need only recall the recent experiments of M. Luys, of suggestion at a distance—as, for example, obtaining the intoxicating effects of alcohol by means of a small phial held near the hypnotized subject. Such

a fact as this, for it is a fact well attested by many observers of M. Luys's experiments, can only be explained by suggestion. M. Luys was, in all probability, himself deceived, for his subjects most certainly have had suggested to them the effects that were expected from the various drugs employed. Moreover, few or none of the many enthusiasts have been able to obtain any like results.

Before taking up the special therapeutics of hypnotism, it is necessary to speak of a very important difference between the two great schools of hypnotism, the one at Nancy, the other at Salpêtrière. M. Bernheim, of the Nancy school, has been experimenting for years with hypnotism, and has used many thousand subjects, and he comes to the conclusion that it is possible to hypnotize nearly every individual, if one will only patiently repeat the attempts from time to time. He thinks that hysteria has nothing to do with hypnotism, and, as proof of this assertion, great numbers of his experiments have been made upon men. In other words, his doctrine is that hypnotism, in its simple, uncomplicated state, must be studied only in the healthy subject. M. Charcot, and the school of the Salpêtrière, on the other hand, have shown the close relationship between hysteria and the hypnotic state, and hold that all persons in whom the hypnotic state can be brought about are hysterical, or come under the general term hysteria, the limits of which are very wide. They attest, as evidence, that many patients brought to the Salpêtrière with supposed organic affections, are stated by relatives and physicians to be absolutely free from hysteria, and yet careful observation detects undoubted signs of hysteria ; the affection is treated accordingly, and cured. In addition, many cases of very well-marked hysteria have been described in men, and there are at the Salpêtrière now several men with hysterical hemianæsthesia.

It is very evident that the decision of this question, which requires more careful investigation, will have a very important bearing upon the subject of hypnotism. If, to obtain hypnotism in its most perfect form, the subject must be hysterical, then the application of this remedy is necessarily limited. Moreover, as a direct consequence of this position, it follows that the only conditions in which hypnotism can be of any service are purely affairs of the imagination, purely hysterical.

One of the earliest uses of hypnotism was to produce a state of insensibility, so that surgical operations could be performed without pain. The cases reported by Esdaile, mentioned above, and numerous instances related by other observers, show what an important part hypnotism would have played had it not been for the discovery of anæsthetics. Of course, after this discovery, the application of this agent fell into disuse, for several reasons, the most important being that not all persons were hypnotizable. Of late years, however, it has been employed for this purpose, especially at Nancy, and it has also been resorted to in accouchement.

As a means of confirming diagnosis, hypnotism is very valuable. Cases of paralysis, and often hysterical paralysis, counterfeiting most perfectly the organic affection, can be cleared up most wonderfully, oftentimes, by hypnotizing the patient. The same is true of contractions and of that very curious and interesting condition, hystero-epilepsy. It is a mistake to believe that this latter affection is confined to France; while it is probably seen in its highest perfection in Paris, it undoubtedly occurs in all other countries, notably in America. After having seen *la grande hystérie* at the Salpêtrière, any one who has seen much practice in the United States can recall such cases. Sometimes it is extremely difficult to make an exact diagnosis in this class of cases, for the first stage of the affection is very like ordinary epilepsy, but careful observation will always bring out the hysterical element.

Hypnotism offers a means of cure in those cases, or at least a means of preventing the attack. A great many hystero-epileptics know when the crisis is approaching, and if they are hypnotized and allowed to sleep for some hours the attack is generally averted. Unfortunately, it is not always possible to bring them under this influence at this time. Often there seems to be a sort of exaltation which effectually prevents the use of hypnotism. The patient will try to enter into this condition, for he dreads the crisis of hysteria, but will often say "it is impossible for me to sleep." Still it is possible, in a large number of cases, thus to intercept the attacks, which will, when treated in this manner, grow more and more rare.

Cases of monoplegia, contractures, and the like are very amenable to hypnotism. The treatment of this class of cases is that by suggestion. Just how far it is possible to go in this direction, we do not as yet know. If it is possible to produce vesication, and this has been repeatedly done on very susceptible subjects, one can hardly say where the limits should be fixed.

One very important point that the study of hypnotism has brought out and emphasized, is the potency of suggestion. Some light is let in upon the influence that the charlatan possesses over the people in general, and the faith in patent medicines and in homœopathy meets an easy solution. Doubtless most of the slight aches and pains that the general practitioner is called upon to treat are partly imaginary, and all that is necessary for cure is a certain amount of faith on the part of the patient, begotten by judicious suggestion by the medical man. At first sight, this seems to be a sort of chicanery, but it is impossible to deny its efficacy, and it is much safer for the doctor to

acknowledge, to himself at least, that it is not his simple remedy which has wrought the cure, but his suggestion to the patient.

One needs no better example of the power of suggestion than the many cures brought about by the *faith-cure*. In this case religious fanaticism is called upon to produce an effect upon the mind of the credulous patient, and if the malady is an imaginary one the relief is instantaneous. It was thought by some of the advocates of hypnotism, that it would prove an important agent in the treatment of certain forms of mental disease, especially paranoia; but such expectations have not been realized. In the first place, it is extremely difficult to hypnotize the insane; and, in the second place, the delusion has become so fixed, at least when the patient is in an asylum, that it is practically impossible to dislodge it. However, several very interesting cures have been reported, particularly those of M. Voisin in his wards at the Salpêtrière. These cases were evidently what might be called hysterical mania. Doubtless it would be quite possible to treat successfully certain cases of beginning paranoia before the delusion has become permanently fixed, and while it is merely an insistent idea.

It is possible in a short paper only to indicate the therapeutics of hypnotism, which are capable of very considerable elaboration. That hypnotism has its uses no one who has followed the careful and systematic work that has been expended upon it during the past few years can deny. On the other hand, it has certainly not met the extravagant anticipations that were raised a few years ago, when it was first employed as a therapeutic agent. Future investigation is needed to fix exactly its place in the category of remedial agents.

A word of warning must be given, as is necessary in the case of all therapeutic agents. Without doubt, harm can be done by the injudicious use of hypnotism. Already a number of cases of confirmed hysteria and even of complete mental derangement have been recorded in France, the results of the employment of hypnotism by persons unfit to undertake such experiments. Like other remedies, it should be used only to counteract some abnormal state, and its use as a parlor amusement cannot be too highly condemned.

Paris, September 17, 1888.

MEDICAL PROGRESS.

Methyl Chloride as a Local Anæsthetic.—According to Bailly, if a stream of chloride of methyl is poured upon some dry cotton, held in silk, a temperature of —9° to —67° is produced, which persists for a quarter of an hour to an hour. Passed by the forceps over the skin, it produces temporary analgesia sufficient for a number of minor surgical operations, and may be used to relieve certain painful conditions, such as peripheral neuralgias; in muscular rheumatism, particularly in lumbago and torticollis, have striking results been obtained. Gastralgias, hepatic colic, even a case of tetanus, were favorably influenced by the remedy, which the writer designates "stypazi."—*Deutsche med. Wochenschrift*, September 6, 1888.

Capsules Analgesiques.—

R.—Menthol,
Antifebrin . . āā 3j.
Sacchari lactis . . . q. s.—M.

Divide in capsules No. 24.

The dose is one or two capsules.—*Revue de Thérapeutique.*

Helleborein as a Local Anæsthetic.—Vittorio and Eloidio (*Allg. med. Centralzeitung*) have found that three or four drops (gr. $\frac{1}{40}$th to gr. $\frac{1}{30}$th) of a watery solution of helleborein, instilled into the conjunctival sac of the eye of rabbits or dogs, in about ten minutes produce complete anæsthesia of the cornea for half an hour, the other contiguous portions of the eye retaining their sensibility. Though helleborein may possess some advantages over cocaine, the extraordinary toxicity of the former will stand in the way of its frequent use. Permanent changes and unpleasant complications, such as manifestations of irritation in the eye, which are, for instance, to be feared from erythrophlæin, have not yet been observed from the use of helleborein.—*Münchener med. Wochenschrift*, September 11, 1888.

Hot-air Inhalations in Phthisis.—Gratifying results have recently been obtained in treating phthisical patients with inhalations of hot air, by Weigert, an American resident in Berlin. He found that tubercle bacilli outside the body die at a temperature of 41° C., and are adversely affected by one of 38°, and had constructed an apparatus for the inhalation of heated air, and commenced to make trials on phthisical patients in the early stage recommended to him by other medical men, he himself not being in practice. At first a temperature of from 40° to 60° C. was employed, the air for inhalation being quite dry. This temperature was gradually raised as high as 80° C. The patients bore this hot dry air exceedingly well, and continued to inhale it for three or four hours a day during a month, the only unpleasant effects produced being hyperæmia and dryness of the mucous membrane. The general effects are represented as having been remarkable, patients who had been falling away picking up strength and becoming quite robust, the physical examination showing at the same time that the dulness and râles had perceptibly decreased. The bacilli in the sputum, which had been very numerous, rapidly diminished in number, and finally disappeared altogether. These observations were confirmed by several other medical men. Dr. Halter, of Lengerich, Westphalia, seems to have gone even further than Dr. Weigert, he having himself inhaled, and caused patients also to inhale, dry air heated to 190° C., with satisfactory results.—*Lancet*, Sept. 29, 1888.

Sand-bags for Hemoptysis.—In a case of tubercular hemoptysis, the hemorrhage coming from the left apex, Betz, of Heilbronn (*Memorabilien*), attained prompt

results from the application of a two-pound sand-bag over the left apex, after he had observed that the respiration was greatly quickened, 33 to 35 per minute, and particularly that there was greater expansion in the left subclavicular region than in the right. The pressure of the weight reduced the number of respirations and aided the breathing. The hemoptysis ceased within twenty-four hours.—*Münchener medicin. Wochenschr.*, Sept. 11, 1888.

Treatment of Laryngeal Phthisis.—A solution of menthol, twenty parts, in one hundred parts of olive oil is much used by BEEHAG, with good results. By means of a syringe, prepared for the purpose, he applies it directly to the mucosa of the larynx, guided by the laryngoscope. At the moment of inspiration, the patient inspires deeply and particles of the medicament are carried into the finer bronchi. The cooling and anæsthetic effects of the menthol are at once developed, and the plan is devoid of any disagreeable effects.—*L' Union Médicale*, September, 1888.

To Keep Hypodermatic Syringes Clean.—Hypodermatic syringes, the canulæ of which have become obstructed, may be cleared by holding the needle for a moment over a flame; the foreign matter is at once expelled or destroyed. Should the wire in the canula become rusted, the former can be removed by dipping the latter in oil and holding it over a flame. It is well to introduce oil into the needle and then to heat the latter; rusting is thereby prevented. When about to use the needle, alcohol should be passed through it.—*Münchener medicin. Wochenschr.*, September 11, 1888.

Eczema of Anus and Genitals.—LUSTGARTEN advises hot sitz-baths, rendered very soapy, and, subsequently, the application of the following pomade.

R.—Oleate of cocaine	. . .	1 part.
Olive oil	. . . . .	2 parts.
Lanolin	. . . . .	10 " —M.

Apply twice daily to affected parts.—*Le Progrès Médical.*

Amaurosis from Dental Caries.—RÉVA (*Revista de Ciencias Med.*) reports a case of complete amaurosis, in a woman, aged thirty, upon the side of a carious second molar teeth of the upper jaw. Upon the removal of the diseased tooth, in the root of which a fragment of a wooden dental drill was found, sight returned.—*Medicin. Chirurg. Rundschau*, August 1; from *St. Petersb. med. Wochenschr.*, No. 21, 1888.

The Treatment of Ingrowing Toe-nail.—HOFMANN (*München. med. Wochenschr.*, No. 32, 1888) recommends the following procedure: The wound and the part are thoroughly cleansed and disinfected with sublimate solution; several drops of a solution of ferric chloride are poured upon the sore spot and the nail elevated; the part is then permitted to dry. This process is repeated on the second and third days. In a few days the hard crust which has formed is removed with the forceps. The bleeding which results is checked by the use of the iron solution. In three or four days the crust is again removed; and this is repeated until the surface of the skin is smooth. On the second or third day, already, the nail, softened and made friable by the iron solution, may, with some care, be painlessly removed with a small scissors or blunt knife. To prevent recurrence, bits of cork should be placed under the margin of the nail.—*Therapeutische Monatshefte*, Sept. 1888.

Rumination in Man.—A case of rumination in man has been observed by a physician of Odessa, occurring in a man of twenty-two years. The food was regurgitated about fifteen minutes after eating, and the chewing continued for some time, often for several hours. The patient, who was married, had been addicted to excessive sexual intercourse for three years, to which fact the regurgitation was attributed. It seemed to be a case of marked sympathy between the genital, gastric, and œsophageal functions.—*Revue Générale de Clinique et de Thérapeutique*, September 20, 1888.

Treatment of Ascites.—Although not a new device, the treatment of ascites by faradization is again brought forward by MURET, who reports good results in some of his own cases. He applies the current directly to the abdominal walls, daily, for several months, and finds that muscular contraction induces greater activity in the lymph channels and consequently absorption of the fluid. —*Revue de Médecine*, September, 1888.

The Administration of Creasote.—KEFERSTEIN recommends the following formulæ as useful for the administration of creasote:

R.—Creasoti	. . . .	1.3 parts.
Spts. vini. rectif.	. . .	25 "
Aqua cinnamomi	. .	100 "
Syrup. cinnamomi	. .	25 "—M.

S.—A tablespoonful three times daily; increasing one tablespoonful weekly.

R.—Creasoti	. . . . .	ʒ j.
Pulv. rad. altheæ	. . . .	ʒ jss.
Succi liquiritiæ	. . . .	ʒ jss.

Mucilag. acaciæ q. s. ut ft. pil., No. 120, obduc. gelatin.
Sig.—Six pills three times daily.

R.—Creasoti	. . . .	♏ xv.
Plumbi acetat.,		
Pulv. opii	. . . .	āā gr. iv.
Succi liquiritiæ	. . .	ʒ jss.

Mucilag. acaciæ q. s. ut. pil., No. 50.
Sig.—Five pills three times daily.

For cough and diarrhœa:

R.—Creasoti	. . . .	1.3 parts.
Solve in		
Ol. amygdal.	. . .	30 parts.
Pulv. acaciæ	. . .	20 "
Aquæ dest.	. . . .	100 "—M.

Ft. emulsio; adde

Tinct. aurantii comp.	. .	1 part.
Elæosacchar. menth. pip.	.	4 parts.—M.

Sig.—A tablespoonful three to five times daily.—*Therapeutische Monatshefte*, September, 1888.

Alcohol and Cirrhosis of the Liver.—M. Alison, after an exhaustive consideration of the effects of alcohol on the economy and its special action on the liver, believes that the business of the individual, outside of the causes commonly attributed to cirrhosis, plays an important *rôle* in its development. Field laborers are rarely attacked by it, and it is more rare in persons given to manual labor than in those who lead sedentary lives. He advises physical training as an effective therapeutic means.—*Archives Générales de Médecine*, September, 1888.

The Treatment of the Atonic Leg Ulcer.—Appenrodt recommends the treatment of atonic ulcers of the lower extremity by massage. For some days before manipulation is commenced, the sore is treated antiseptically and the entire leg made aseptic, for otherwise abscesses and furuncles would result from infectious matters being forced into the lymph channels. At first, gentle massage is performed below the knee and gradually advanced upward. The manipulation drives the lymph from the excoriated surfaces—an evidence of success. Lanolin is used to anoint the skin. Before and after the massage, the skin is thoroughly cleansed and disinfected. The ulcer and the surrounding inflammatory area are covered with gauze spread with lanolin, over which are placed tissue-paper and a bandage. The addition of disinfectants to the lanolin is not only unnecessary, but in most cases harmful. Only when the skin is not susceptible may iodoform gauze be used, because this often gives rise to erythema. Impermeable coverings are to be avoided. Swelling and hypersecretion disappear and granulations soon show themselves. Rarely is it necessary to add starch or zinc oxide to the lanolin to overcome any eczema. The massage must be continued after the ulcer has healed and the limb be judiciously used.—*Therapeutische Monatshefte*, September, 1888.

Administration of Morphine.—It is pointed out in *Les Nouveaux Remèdes* that morphine should never be given in cherry-laurel water, or in any solution containing hydrocyanic acid, however small the quantity. The precipitate formed of morphine and the acid is a most deadly poison. It forms slowly, and the patient is liable to take a toxic dose when the contents of the bottle are nearly exhausted.

The Treatment of Retro-pharyngeal Abscesses.—Burckhardt, of Stuttgart, in three cases, has successfully opened retro-pharyngeal abscesses by incisions into the neck. The skin and platysma, at the level of the larynx, are divided by an incision parallel with the anterior border of the sterno-mastoid muscle, the cervical vessels pushed outward and dressing forceps introduced between the latter and the larynx toward the abscess. The advantages of this method consist in the possibility of anæsthesia, ready drainage, and antiseptic treatment of the cavity.—*Deutsche med. Wochenschrift*, September 13, 1888.

Rupture of the Spleen.—M. Barrallier, who has made a study of this accident, concludes that it is most liable to occur in the earlier stages of malarial poisoning, when the spleen is suddenly inflamed and the seat of great vascular engorgement. The lesion, which is commonly fatal, has a sudden onset, and is preceded by no special symptoms. He designates it as a pernicious splenic fever.—*Archiv. Gén. de Méd.*, Sept. 1888.

For Itching.—To relieve the itching of hemorrhoidal affections, pruritus ani, pruritus senilis, etc., wash the part with lukewarm water and good soap; then rub in lanolin in the following combination:

℞.—Lanolin puriss. . . . 30 parts.
Vaselini,
Olei olivæ . . . āā 20 parts.

When the itching about the anus is severe, cocaine may be added thus:

℞.—Cocainæ hydrochlorat. . $\frac{1}{10}$ to $\frac{1}{5}$ part.
Lanolin puriss. . . . 30 parts.
Vaselini,
Olei olivæ. . . . . āā 20 "

The addition of ten per cent. of flowers of sulphur has proved useful.—*Therapeutische Monatshefte*, September, 1888.

Antiseptic Obstetric Dressing without Injection.—In view of the fact that intra-uterine injections are by no means devoid of danger, Roulin practises and recommends that just previous to labor the external genitals be thoroughly cleansed with a solution of chloral, 1 : 100. After the birth of the child the parts are again washed and the vulva covered with several layers of lint sterilized and impregnated with salol. Over this is placed a cotton wad, wet in a solution of chloral of the same strength as that before mentioned, and wrung out nearly dry. The dressings are changed every six hours. Eight cases have been treated in this way with excellent results. The originator admits that in cases of retained placenta and the like, injections would be required, but ordinarily this plan answers admirably and is wholly free from danger.—*L'Union Médicale*, September 27, 1888.

Bandaging the Extremities for Pulmonary Hemorrhage.—Seitz (*Archiv für klinische Medicin.*), as the result of experimental investigations, recommends bandaging the extremities for hemorrhage from the lungs; first the upper extremities, at or about the middle of the arm, then the lower at the middle of the thigh or immediately below the knee, using silk bands about three-quarters of an inch wide; or, in case of necessity, strips of any sort. By imprisoning the blood, the tension of the left ventricle is diminished, and contraction of the vessels in the area not included occurs. The half hour during which the bandages are retained suffices for the formation of a thrombus at the site of hemorrhage. The method was used in the time of Hippocrates.—*Deutsche medicin. Wochenschr.*, September 20, 1888.

For Hysterical Hyperæsthesiæ, Gastralgiæ, Vomiting, and Spasmodic Conditions.—Ewald (*Digestive Disorders*, vol. ii.) recommends the following:

℞.—Morphinæ hydrochlorat. . gr. iij.
Cocainæ hydrochlorat. . gr. iv–viij.
Tinct. belladonnæ . . ʒ j–ijss.
Aquæ amygdal. amar. . ʒ vj.—M.

Sig.—Ten to fifteen drops hourly.—*Therapeutische Monatshefte*, September, 1888.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 20, 1888.

THE CASE OF FREDERICK THE NOBLE.

THE arraignment of Sir Morell Mackenzie by the German physicians associated with him in the medical management of the unfortunate Frederick the Third, and principally by Gerhardt, von Bergmann, and Landgraf, has received from Mackenzie a scathing rejoinder, which contains a distinct accusation that von Bergmann, in futile endeavors to replace a tracheal canula, made a false passage in front of the trachea, which was the immediate cause of precipitating the inevitably fatal result.

We have refrained from commenting upon the report of the German physicians, although in our possession several months, until we should have read the report of Mackenzie. In general terms, we may state that the questions raised in this unseemly controversy are largely questions of veracity;—questions which cannot be decided here, where Mackenzie and his chief opponents have always been held in equally excellent repute. We decline to enter into the details further than is necessary to present a strictly clinical aspect of the case itself as gathered from the two reports.

There are three important clinical points involved, which are of great scientific and therapeutic interest. All the others seem foreign to the main features of the case, being contingencies and complications which might occur under various conditions, or might not occur at all; and we shall not discuss them. These three points may be put in the form of questions.

1st. Was it at all probable that a benign growth was practically transformed into malignancy by the applications made with the electric cautery, before a fragment of the growth had been removed for microscopic examination, or by the manipulations subsequent?

2d. Is it probable that thyrotomy and eradication or radical destruction of the growth *in situ*, at the time that preparations had been made for the purpose, would have been more successful than the plan adopted?

3d. Was unilateral or complete excision of the larynx justifiable at any period of the malady, and if so, at what particular period?

First. A thorough and painstaking collective investigation, now perhaps completed, by Dr. Felix Semon, of London, has been so far published as to show great improbability that intralaryngeal manipulation has ever converted a benign tumor into a malign one; and that it is quite likely that the ultimately malign growths were malign originally, even in the few instances in which the transformation was believed to have taken place. In view of the conclusions drawn from this collective investigation of several thousand benign neoplasms submitted to intralaryngeal manipulations the most diverse, it is strange that so well informed a laryngologist as Sir Morell Mackenzie could have done more than hint at the remote possibility of such an occurrence: the more so as his own manipulations were by no means free from the same implication. Even those laryngologists who had hitherto held this view the most strongly, have corrected their previous opinions. This question is a very important one; for if the answer should be affirmative as to more than an insignificant percentage, the inference would follow that repeated efforts at intralaryngeal procedures for the eradication of benign neoplasms would have to be superseded by procedures for eradication by external access. In the instance under discussion, the fragments removed by Mackenzie and pronounced benign by Virchow, must have been the very surfaces most likely to undergo the transformation alluded to. We, unhesitatingly, answer the first question in the negative.

Secondly. At an early period in its history, a neoplasm, as yet insignificant in its visible dimensions, occupies a portion of the larynx more frequently the special seat of malign growths than of benign ones. It exists in the person of a man in his prime and apparently in the best of general good health. The

patient's age and a partial family history of cancer render the case at least suspicious. It must be closely watched. Failure to control the development of this neoplasm by intralaryngeal attack, instituted under either the hope or the conviction that it was benign, leads to the opinion that it is not benign; and intralaryngeal interference is thereupon suspended. This is the situation when thyrotomy is proposed.

The operation of thyrotomy to afford complete access to the neoplasm for the purpose of eradicating it in a few minutes, provided it appeared that it was limited to a small portion of the interior of the larynx, was, in our opinion, a very proper proceeding under the circumstances—in the light of the subsequent clinical history probably the very best, whether the tumor should prove to be benign or malignant. If the latter, the importance of having had the proposed operation performed at the earliest moment practicable, cannot be successfully contested.

Thyrotomy, in itself, is not a dangerous operation. Performed at a time of election, it is really less dangerous than tracheotomy performed in an emergency. A healthy subject is rarely confined to his room for more than two or three days after the operation; and he is often able to leave his house in from a week to ten days. If, however, a large and vascular neoplasm occupies the interior of the larynx, its extirpation may be attended with copious hemorrhage, and inflict such injuries to the tissues as may compromise the result. As far as may be judged from all the reports, no such complication was to be anticipated; and the probabilities are, therefore, strong that the immediate result of this operation would have been a good one, although the voice would have been impaired. It could hardly have been worse than the plan adopted. It might have been salvation. Should the tumor have proved to be benign, a permanent cure would have been in immediate prospect. Should it have proved to be malign, the prospect of recurrence would have remained for some time in doubt; probably for a long time, provided that the whole of the morbid growth had been removed with a sufficiently extensive zone of healthy tissues. Should it have turned out that the growth was not only malign, but that it extended beyond the field visible on laryngoscopic inspection, the question of resort to radical measures by excision of the larynx, in whole or in part, would have had to be settled at once, instead of being postponed to a period which, under symptomatic and expectant treatment, would render the prospects of recovery still more problematical. In a case of malign growth, the sooner a decision is reached in this respect the better.

In estimating the probabilities of death from the operation of thyrotomy in carcinoma of the larynx, or in gauging the prospects of recurrence, a great deal depends upon the stage of the disease at which the operation is performed. Each case must be made a study in its own behalf. Statistical computations are often misleading. Sir Morell Mackenzie gives a list of twenty-two thyrotomies for carcinoma, in which there are only two cures.

We have not the data at hand to determine the stage of disease at which these operations were undertaken; but our belief is that not one of them was undertaken at a period so promising for success as the case in question at the time the operation was contemplated;—hence the inference that in this instance another case would probably have been added to the series of cures, rather than to the series of deaths. We notice, however, that Mackenzie has failed to include two cases of cure, one of three, and the other of twenty years' standing, both mentioned on page 20 of the pamphlet he criticises, and from pages 19 and 21 of which he makes citations at the very head of his table. The first case alluded to was one of von Bergmann's, which, he states, he vainly requested Mackenzie to examine. The other is one of the elder Solis-Cohen's, performed in February, 1868, the subject of which is still living. This case was reported in The Medical News of December 3, 1887, and was reproduced in the *Revue Mensuelle de Laryngologie*, etc., 1882, No. 2. In another instance in the thyrotomy table, of which we have cognizance, recurrence did not take place in three months, as recorded, and did not take place in the larynx at all. An independent epithelioma became developed in the cutaneous cicatrix.

To our mind, the minute size of the original growth in the Emperor's case, and still more the facts that Mackenzie states that he destroyed it so utterly that by August 13th the last slight wound of his electric cautery had healed, and that the growth thus destroyed never returned, are proofs incontrovertible that this same growth, which required three months for its eradication by intralaryngeal procedures, could have been removed in a few minutes, just as radically, by thyrotomy, on that

memorable 21st of May, when everything was ready for that purpose. In this connection we cannot refrain from expressing our surprise that the two slight cauterizations, described by Mackenzie, accomplished so much. It adds another unique feature to this remarkable case.

It should be remembered, however, that the growth pronounced benign by Virchow, and destroyed by Mackenzie, may have been really benign; and that the malignant neoplasm existed beneath it and out of sight; and, in further support of Mackenzie's position, it should also be remembered that Virchow distinctly stated that his studies in this connection had failed to reveal a single example of coexistence of benign and malignant growth.

The light now shed on the case enables us to answer the second question in the affirmative.

The *third* question is much harder to answer; and here our judgment leans much further toward the views maintained by Mackenzie. That life is in imminent immediate peril in every case of complete excision of the larynx, there is but little doubt. There is but little less doubt that it is nearly as practically imperilled in unilateral laryngectomy. Under both conditions, however, the stage of the disease is of immense importance. The better selection of cases is rendering both operations more and more promising of success. Few patients die from the immediate effects of either operation; but a large number perish within two weeks from pneumonia. A great many perish from recurrence at a period anterior to that which they have a prospect of reaching under expectant treatment. A few are cured.[1]

The choice of the two alternatives: inevitable death at a period varying say between one and three years from the beginning of the malady; and a forlorn chance of recovery should the immediate and the immediately proximate risks be successfully surmounted, must in great measure be left to an intelligent patient himself. There are occasions under pressure of which a man might well prefer a certainty of life sufficiently long to provide for his family, or to attend to some matters of great humanitarian importance, rather than run the risk of almost immediate death with a bare chance of ultimate recovery. There may be circumstances under which a physician might be debarred from communicating such a decision to others; and be compelled to bear the entire responsibilities that may ensue in consequence. The decision once made, every day of delay lessens the chance of success, and thus, in a very short time, the result of a decision not to submit to any radical operation becomes irretrievable.

A careful review of both stories has led us to the opinion that, thyrotomy having been abandoned at the commencement, a radical operation upon the larynx was justifiable up to the period at which Landgraf is said to have noted extension of the morbid process and its commencing encroachments upon the hitherto sound side, and to have urged a consultation in consequence; but after that period the radical operation was no longer justifiable.

Our answer to the third question is, that, if the patient were willing, a radical operation was probably justifiable during a portion of his sojourn in Great Britain, and that after his removal to San Remo the time for such measures had passed.

[1] Park's case, 1885, "reported cured in six months" in Mackenzie's table, remains a CURE, and is still alive (1888) without recurrence.

The Trustees of the Hoagland Laboratory, in Brooklyn, announce the completion of the Laboratory and its equipment for practical work. Special facilities are offered to those who desire to prosecute original research. For this purpose private laboratories have been provided, and arrangements are now being made for the purchase of a library which shall contain all the literature necessary for reference in the departments of bacteriology, physiology, and pathology.

Owing to the absence in the South of Dr. George M. Sternberg, the Director, in the further prosecution of his investigation into the cause of yellow fever under orders from the President of the United States, the course of lectures on bacteriology, already announced, will be postponed until his return. The Trustees further announce that the services of George T. Kemp, Ph.D. John Hopkins University, have been obtained as Associate in bacteriology and physiology, and that, with his assistance and under the direction of Dr. Sternberg, practical instruction in bacteriology will be given during the Winter and Spring.

Dr. William T. Lusk has been elected President of the New York State Medical Association.

Dr. Osler does not leave Philadelphia to enter upon his duties as physician to the Johns Hopkins Hospital until next May.

DR. JOHN N. MACKENZIE has been elected Clinical Professor of Diseases of the Throat and Nose in the Medical Faculty of the University of Maryland, *vice* Dr. Frank Donaldson, resigned.

ZUCKERANDL, formerly of Grätz, has been made Professor of Anatomy at the University of Vienna; von Ebner, also formerly of Grätz, Professor of Histology; and Puschmann, Professor of the History of Medicine.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

Third Annual Meeting,
Held at Washington, September 18, 19, and 20, 1888.

(Specially reported for THE MEDICAL NEWS.)

(Concluded from page 429)

SEPTEMBER 20TH.—MORNING SESSION.

DR. GEORGE L. PEABODY, of New York, presented the pathological specimens from the case in which there was

A PIN IMBEDDED IN A WOMAN'S HEART.

The patient died at the New York Hospital the 26th of last May. She was under observation only a few hours. On admission she was suffering greatly from dyspnœa and was unable to give a circumstantial account of her illness. For some time previously she had passed less urine than normal, and her feet had been swollen. She suffered from constipation, vertigo, spots before the eyes. Her appetite was poor, bowels regular. Temperature 100.8°, respiration 44, pulse 130. The specimen of urine was of a yellow color, acid in reaction, and of specific gravity 1.020, with albumen, epithelial casts, and pus cells. Her chest contained a large amount of fluid; moist râles both behind and in front. No murmur. Heart-sounds very feeble. Œdema of feet and legs. She was given acetate of potash and infusion of digitalis, and passed a fairly comfortable night. The next morning she seemed to be doing fairly well, when she suddenly experienced great precordial pain, distress, and intense dyspnœa. She was given morphia subcutaneously, but she continued to suffer until death came to her relief in half an hour.

At the post-mortem a black, eroded pin, the top of the head of which was free in the left ventricle, was seen piercing one of the papillary muscles attached to the anterior segment of the mitral valves, and penetrating the wall of the ventricle obliquely to the depth of a little more than an inch. The point of the pin was distant one-fifth of an inch from the external surface of the heart. There was no evidence of any recent inflammation in this neighborhood, but the endocardium about the protruding head of the pin was greatly thickened and snow-white, and firmly adherent to the edge of the head. A most careful examination failed to reveal the route by which the pin had travelled to its present location, and it is interesting that it should have remained for a long time free in the cavity of the ventricle without producing thrombosis. The pin had evidently been in its present situation a long time, and, in all probability, had entered the body by the mouth.

ON THE RELATION BETWEEN TROPHIC LESIONS AND DISEASES OF THE NERVOUS SYSTEM.

DR. E. C. SEGUIN, of New York, opened the discussion on this subject. He said that he excluded from consideration vasomotor disorders, and diffused or quantitative nutritional changes, partly because he considers them to be a distinct subject, and partly because their study would be beyond the scope of a short paper. He divided the so-called "trophic lesions" into two great classes. In one the lesions are probably mostly due to the action of extraneous causes, and are preventable. The second class embraces lesions which seem to be directly due to the nervous disease, and which are its necessary and unpreventable results. He endeavored to show that lesions of the second class, which alone merit the name of *trophic lesions*, occur in organs and tissues which are anatomically continuous, and whose life (or preservation of structure and function) is associated or interdependent. He concluded that disease of the nervous system produces true trophic lesions when it interferes with the associated or interdependent life of continuous tissues. This proposition he offered only as a partial and preliminary answer to the question under discussion.

DR. H. C. WOOD, of Philadelphia, as co-referee, presented the following conclusions: 1. It is physiologically proven that the nervous system directly affects general nutrition. 2. Various lesions are the immediate result of previous nervous disease. 3. In various cases the lesions are not preceded by circulatory disturbances. 4. No known vasomotor condition is capable of causing any of these lesions. 5. Therefore, it is absurd to attribute changes to preceding vasomotor changes.

DR. W. M. ORD, of London, said that he felt very much honored at being asked to speak on this important subject, but before he said a word he would beg to tender the Association his gratification at the very high tone and character of the discussions on the papers he had previously heard in this room.

As regards the two papers he had heard read, they had certainly stood in strong contrast with one another: the one critical, the other appealed strongly to the imagination and fascinated one by its strong and logical character of thought and imagery. He would try to prove at the start how, from disturbances of nutrition, there is a starting-point in the nervous system of the local hepatic disturbances. He did not think Dr. Seguin denied that the changes in chronic rheumatism are of a histological character. He would quote two cases bearing upon this point which he saw recently before leaving London, having had them under observation for more than a year. The first was a case of chronic hypertrophic cervical pachymeningitis, which presented a very typical form of that disease. This patient, a young man, at the time of his admission showed very little change in the skin and none in the joints. He was kept in bed, treated, and recovered to a large extent his motor power, and completely his sensation. There was a steady wasting of the tissue around the second and third digits, a distinct and marked change in the joints. The joints of the thumbs and fingers became somewhat tender, and finally loose. All the physical signs of progressive chronic arthritis developed in conjunction with dystrophy

of skin and muscle without any local irritating cause. The next case was an old man, who, for many years, lost power and wasted in the upper extremities. This man had a wasting of the skin, and a very remarkable change in the joints. They were considerably swollen, were constantly dislocated and as constantly put back in place. The whole muscles of the upper extremities were wasted. He sat up in bed with great difficulty. These two cases illustrate very well the primary affection of the nervous system in determining dystrophy of the joints.

Early in his endeavors to analyze pseudo-arthritis he was brought face to face with a class of cases which interested him very much. As a woman approaches the climacteric period one sees a painful swelling of the small joints of the fingers and toes. Examining this with great care the one thing always present was disorder of the catamenial function, and chiefly such a disorder as consisted in menorrhagia. He had seen cases in which, as the climacteric began to develop, the joint affections returned with intensified severity; but the day before he left London he saw two cases: one was a lady of sixty years, who had troubles of this kind during the climacteric period, and had a large uterine fibroid. Here was an unusually persistent type of the subacute form of this disease long after the cessation of the catamenia. People who suffer in this way are, in all cases, very excitable, anæmic, and sensitive women. It appeared to him that, as affections of the nerves or spinal cord may bring about neurotic dystrophies in joints, so local irritation may produce, in a reflex way, affections of joints more or less parallel to the affection determined by nerve disease. In the same way he has great reason to believe that continued prostatic irritation will produce affection in the joints of the leg. Gonorrhœal rheumatism may itself not be the result of a microbe, but the work of the nervous system. Acute rheumatism might be traceable to similar causes. It seemed to him that acute rheumatism is often developed under conditions which would indicate affections of the nervous system—such affections as would bring about, in a reflex way, the irritation of the joint. It occurs certainly after parturition. It occurs almost invariably in people who are very anæmic, or have lost large quantities of blood, and whose nervous system is brought into a state of over-expansiveness.

Dr. M. Allen Starr, of New York, said that he had very little to add to the discussion. It seemed to him that the departure of Dr. Seguin marks a decided advance toward a certain amount of clearness in the study of trophic disturbances. The point he made, that trophic disturbances must be distinctly separated from nutritive disturbances, has not been appreciated, and it seemed to him to be a very important one, and one that threw considerable light on the subject.

There is a class of nutritive disturbances that has not been mentioned yet, which has been described by Dr. Osler as cerebral palsies, viz., that class of atrophies which follows hemiplegia in children. In adults it does not appear to be followed by any amount of atrophy on the paralyzed side. It is important to separate vasomotor from trophic disturbances. Trophic disturbances follow very closely on vasomotor disturbances, and it is not strange that the two should be confounded.

Dr. H. P. Bowditch, of Boston, agreed entirely with Dr. Seguin that any attempt to explain the mechanism of trophic changes must be speculative in our present knowledge. We have to recognize in muscular tissues two distinct metabolic processes, one having its cause in the nitrogenous and the other in the non-nitrogenous metabolism. These are distinct inasmuch as it has been shown that the nitrogenous metabolism is not connected with muscular activity, while the non-nitrogenous is. When the muscular activity is kept within physiological limits urea excretion remains the same. Nitrogenous metabolism of the body is essential for muscular activity. It is essential for muscular activity that an abundant stream of nitrogen should flow into the body and out again. So the nitrogenous metabolism of the muscles goes on quite independently of its functional activity. If we limit the term trophic to the nitrogenous metabolism of the muscle and let the non-nitrogenous metabolism go as the functional activity, we would simplify matters a good deal.

Dr. Pye Smith, of London, said that he had listened with great pleasure to the two admirable papers read before the meeting. He confessed that both from a physiological and clinical standpoint his judgment would be entirely on the side taken by Dr. Wood with such eloquence and zeal. He did not quite agree with Dr. Wood in imputing a logical error to those who resort to the supposition of traumatism and vasomotor disturbances to explain the phenomenon in question. He would quote the case reported by Hilton of a patient with an ulcer in the hand which got worse and worse in spite of all endeavors to cure it, when it was discovered that a minute exostosis was pressing on the ulnar nerve, and when the exostosis was removed the ulcer healed rapidly. Gangrene caused by an embolus obstructing an artery is a well-known fact. He still thought there are cases of gangrene quite inexplicable on such an hypothesis. They had all seen those strange cases of skin eruption come on rapidly following lesions of the cord. His own experience is that these trophic cutaneous lesions are bullous or herpetic in character. He thought they must admit from such strong evidence that trophic nerves have a true position not only in physiology but in medicine.

Dr. Ferrier, of London, was of the opinion that there can be no question of the direct influence of the nervous system on the nutrition of the tissues altogether apart from vasomotor changes, and agencies operating *ab-extra*. This is shown, among other things, by the structural modifications which are observed in the glands on stimulation of their secretory nerves; and by the degeneration which ensues in muscles which are separated from the cells of the anterior cornua, or when these latter are destroyed.

This degeneration he holds to be the direct result of the severance of the muscles from their trophic centres, and is not due to secondary inflammatory changes, inasmuch as it occurs under conditions which entirely obviate the initiation and propagation of irritation. But he believes with Dr. Seguin that the great majority of the trophic disturbances which so commonly occur in connection with injuries of nerves, such as panophthalmitis from lesion of the fifth, and the herpetic and other cutaneous disorders from lesion of common sensory nerves, are not due to the withdrawal of trophic influence, but are the results of secondary inflammation or injurious agents operating from without. They are observed more especially in connection with partial lesions of nerves and those most calculated to excite irritation.

He should, however, expect to find (although he is

not aware that the subject has been fully investigated) that section of all the sensory nerves of any given region would induce degeneration of the nerve endings and their annexes, precisely analogous in character to the degeneration which occurs in muscles when the motor nerves are divided, or the anterior cornua destroyed.

But the point is whether these and similar facts are to be regarded as proofs of the existence of a special system of trophic nerves and trophic nerve centres, distinct from those which minister to the general functions of motion (secretion) and sensation, or whether the maintenance of the nutrition of the tissues is merely a different aspect of the general functional activity of sensory and motor nerves.

He has, on the principle "entia non sub multiplicanda," been more inclined to adopt the latter view, and to regard, with Sigmund Mayer, and Dr. Seguin, the muscles, nerves, and anterior cornua as forming together a functional and nutritive unity. In combination these structures exhibit what we call normal laws of reaction and nutrition; but when separated they are reduced, each to its own independent vitality, and exhibit the changes which we are accustomed to call those of degeneration, characterized by the retrogression of the more highly organized, and proliferation of the less highly organized structures.

The recent important researches of Gaskell have thrown new light on the structure and functions of the nervous system, more especially the nerves which innervate the walls of the bloodvessels and the hollow viscera.

There are two sets of nerves possessing diametrically opposite functions. One set, *katabolic*, excite activity and cause waste; the other set, *anabolic*, inhibit activity and promote repair. It may be that the inhibitory or anabolic influence is not, like the katabolic or motor, the direct result of nerve stimulation but only a question of interference of nerves alike in function. But if the facts cannot be so explained, then there would appear to be (in the case of the muscles of organic life at least) a system of nerves which would be properly called trophic.

Whether this differentiation of nerves obtains also among the muscles of animal life is a point which has not been, as yet, determined.

He is of the opinion that more light will be thrown on this subject by the researches on thermal or heat centres now being actively pursued, and on which Dr. H. C. Wood and Dr. Ott have given us valuable contributions.

The question is whether there are nerve centres which influence and regulate the production of animal heat, apart from those which are related to motion and sensation. Many facts have been adduced in favor of this proposition, but, he thinks, much will have to be done before we can regard it as proved.

The muscles are the chief foci of heat-production in the body. He should, therefore, argue that the centres of heat-production must be coextensive with those which minister to the nutrition of the muscles. He is, therefore, not readily inclined to believe that there can exist, anywhere in the nervous system, any one centre capable of maintaining (as a nerve centre must) afferent and efferent relations with the whole muscular system. So far as yet appears from experimental research, increased production of heat has been found in association with irritative lesions of nerve centres and tracts; but he is not aware that it has been proved satifactorily that increased heat-production and increased tissue-waste result from the removal of a centre whose functions could, with propriety, be termed inhibitory or anabolic. But he thinks that researches in this direction are those which are best calculated to throw light on the difficult problem at present under discussion.

MR. VICTOR HORSLEY, of London, begged to be allowed to communicate the results of experiments performed by Dr. Frederick Mott, of London, in the laboratory of the Brown Institution, since it seemed to him that Dr. Mott's observations were of the utmost importance, especially in view of the direction which the present discussion had taken.

The question appeared to him to present the following points. Destruction of what we regard as trophic centres or cutting of fibres leading from the same may presumably produce disturbances of nutrition in one of three ways or combination of these, viz.:

(1) True trophic disturbance.

(2) Loss of function.

(3) Vasomotor changes.

Vasomotor changes, he thought, were anyhow put out of the question by the fact that experimental removal of the superior cervical ganglion of the sympathetic produces practically no change. Dr. Mott's method of experimentation appeared to him to possess the especial merit of excluding not only this complication, but also that due to loss of function. His method was as follows: He ligatured, on one side, certain anterior roots in the cauda equina of monkeys, under strict antiseptic precautions, and then observed the condition of the femora on the two sides. Now the normal metabolic changes in bone are, of course, known since the days of Hunter to be a combination of absorption and restoration. Dr. Mott found that the trophic changes in the bones produced were destructive—*i. e.*, exaggeration of the normal process of absorption. The femur of the side on which the roots were ligatured was probably atrophied, and on microscopic investigation Dr. Mott discovered that the medullary surface of the interior of the bone was thickly covered with osteoclasts. Considering that the function of the bony skeleton is so essentially passive, especially in contradistinction to the example of muscle quoted by previous speakers, and considering the small influence which vasomotor changes could be imagined to bear on the nutrition of such a resistent tissue as bone, he thought that Dr. Mott's experiments definitely supplied proof for the first time of katabolic changes originated by lesion of efferent nerve fibres.

DR. SEGUIN, in closing, said that he had been very much pleased to find that his conclusion and subdivision of these lesions have not met with more contradiction than they had received. He claimed that true trophic lesions are the result of some mysterious connection between the nervous system and organs in other parts of the body. With respect to the very interesting experiments of Dr. Mott, he would say that there is nothing new in the essence of the experiments. He was very pleased to hear no actual refutation of his conclusions.

DR. FRANCIS T. MILES, of Baltimore, read a paper on

THE EFFECT OF CONCUSSION OF THE SPINE ON THE REFLEXES.

He called attention to some lesions of the spine of a traumatic origin which, while cutting off the influence of

the will destroyed the reflex actions. This is a subject, he said, very little brought to the attention of the profession. Dr. Hammond, in his work on the *Diseases of the Nervous System*, gives a case in which the reflexes were lost. In all the series of cases collected in the *Medical History of the War of the Rebellion* nothing is said of the loss of the reflexes from concussion.

Dr. R. T. Edes, of Washington, said that several cases of this kind came under his observation in the hospital in which, a number of weeks after the shock, there was very much exaggerated tendon reflex, a fact of much value in the present discussion. In one case, a male, he found him paralyzed and in a state of complete contracture. He had fallen on his back under the wheel of his wagon. On autopsy, the parts above the medulla oblongata were lost, but all down the cord there was that condition of sclerosis which is found associated with a state of exaggerated reflex.

Dr. Wm. Osler thought that as a result of concussion there may be an abolition of the reflexes which may persist for some length of time. Then, in addition to that, there may be a complete abolition of the reflexes from a central myelitis and a destruction of the integrity of the gray matter. He had a case of that kind recently in Philadelphia. The cases to which Dr. Edes referred they had all seen.

Dr. H. C. Wood had seen a number of cases in which the traumatism ended in a subacute myelitis involving the whole cord. Then again, he had seen cases in which the traumatism ended in chronic lateral inflammation. For instance, a woman gets hurt, may be badly frightened into hysteria, the cord gets badly shaken, a minute hemorrhage perhaps occurs through it, and she gets a myelitis. We may have various lesions following traumatism, as from a blow on the head.

Dr. M. Allen Starr said that it seemed to him that in those cases of concussion in which the reflexes are arrested and in which there is no injury post-mortem to the part of the cord that governs the reflexes, there is the explanation on the theory of inhibitory impulses coming from a higher region and transmitted downward which arrest the reflexes. Such a condition exists in hemiplegia. No doubt in many of the cases of Dr. Mills the condition was one of irritation at a higher level and so arresting the reflex. He agreed with Dr. Edes that, if the patients lived long enough, the irritation would have ceased and they would have recovered with exaggerated reflexes.

Afternoon Session.

Demonstrations in Pathological Anatomy.

Dr. Wm. H. Welch, of Baltimore, demonstrated a series of

microscopical specimens of the thyroid gland after partial extirpation.

It is a well-known fact, he said, that the extirpation of both lobes of the thyroid gland in a dog is followed by characteristic symptoms and the death of the animal. The longest duration of life after the extirpation of the gland was nineteen days. The symptoms made their appearance usually within two or three days after the operation. The first symptoms were fibrillary twitchings of the muscles of the tongue. Similar tremors made their appearance in the other muscles of the body. Tetanic spasms of the muscles of the extremities were very commonly present. Trismus, difficulty in respiration, sometimes labored, and sometimes an alteration of the rhythm of respiration. Sometimes paroxysms of dyspnea. The animal very soon became apathetic, lay down most of the time, could only be roused by noise, but very readily by touching him. In many cases there was observed pallor of the gums of a scorbutic character. Ulceration of the cornea and inflammation of the conjunctiva were frequently present. The hair fell out, the skin itched, and a thickening of the skin was quite noticeable about the cheeks and forehead. A tendency to walk backward and difficult deglutition had been observed. The extirpation of both lobes of the thyroid gland is, therefore, followed by a characteristic group of symptoms and death of the animal.

Last year Prof. Münck, of Berlin, isolated the two lobes of the thyroid gland in a dog by tying off all their vascular and nervous connections, left them *in situ*, and sewed up the wound. The experiments of Münck induced Dr. Halstead to undertake another series of experiments.

A word as regards the normal anatomy of the thyroid gland. After isolation of a single lobe of the thyroid gland according to Münck's method, interesting changes are observed in the remaining lobe. The first noticed is an enlargement of the epithelium. This is accompanied with dilatation of the capillaries. For forty, fifty, or eighty days the change goes on until finally the structure of the gland is so altered as to be no longer recognized as the former thyroid gland.

Dr. T. Mitchell Prudden, of New York, then demonstrated some

sections of atrophied thyroid gland from a case of myxœdema,

described by Dr. Henry Hun in *The American Journal of the Medical Sciences* for July, 1888. Attention was especially called to the large amount of lymphatic tissue which was present in and near the small remnants of glandular structure of the thyroid.

Dr. A. Jacobi then read a paper on the

pathology of the thymus gland.

It has been, he said, the alleged hypertrophy of the thymus gland that has attracted most attention. It is not a very uncommon thing to find a thymus gland weighing twenty-three grammes. He has seen a few cases of sudden death in an infant and absolutely no assignable cause of death except a large thymus gland. If we find a thymus gland of the thickness of more than one centimetre, it is quite natural that the slightest change in the circulation of such a gland should so interfere with the neighboring part as to bring on sudden death. Medullary sarcoma has been first described by Astley Cooper. There is a case of hemorrhagic sarcoma, undoubtedly a sarcoma of the thymus gland with round cells. Virchow mentions a case of sarcoma of the thymus and supposes it can reach the pleura and pericardium in such cases.

Now, it being a fact that the literature of the thymus is very scanty and there being very few observations of disease of the thymus in our literature, it occurred to him thirty years ago that it would be worth while to look

after the thymus in every post-mortem and notice what has occurred. He had, therefore, gathered a certain number of cases in which the thymus was affected, either primarily or secondarily, together with other diseases.

A number of thymus glands have been examined and he had some positive results in regard to tuberculosis, syphilis, diphtheria, etc. Evidently the thymus is an organ in more constant change than any other organ in the human body. He has met with cases in which the thymus was reduced to a very small size by being pressed upon by a tubercular tumor of the neighboring parts. In infants who are tubercular, tuberculosis of the thymus is not very rare. It is found in small tubercular deposits of a miliary kind. There is no doubt that syphilis in the thymus gland is found in two forms as in other organs. It is found as an increase of connective tissue as in liver, spleen, and kidneys in other diseases. It is further found as gummata. There is nothing very characteristic about the changes of diphtheria. They are the least conclusive of all.

DR. GEORGE M. STERNBERG then read a paper on his

RECENT RESEARCHES RELATING TO THE ETIOLOGY OF YELLOW FEVER.

He said he would make a demonstration of the methods of research and give in a general way the result of his investigation up to the present time. As to the specific etiological agent, he had not arrived at any definite result, yet he has done a good deal to make the way clear for other observers, and hoped they may yet arrive at definite conclusions in this respect. To make an analysis of the bacteria found in the intestine of a single individual would require at least six months. He had made ten autopsies in Havana. His general plan of procedure was as follows: As soon as notified that he could make an autopsy, he went to the hospital and made it as promptly as possible. He took blood from the heart, material from the liver, spleen, kidney, and the bladder through its walls, and the stomach and intestines. From the kidney and liver he got organisms in a certain proportion of cases. In six he had a negative result from the liver and four from the kidney. In the majority of cases, from the urine drawn from the bladder he had a negative result. In two out of ten cases he got organisms. In no case did he get the organism which Freire has described, either from the blood, tissues, or alimentary canal. In five cases in which he took considerable pieces of liver and kidney and immersed them in a one per cent. solution of bichloride of mercury, wrapped them up afterward in a piece of muslin saturated with bichloride of mercury several thicknesses, put these pieces away in a laboratory for forty-eight hours, then taking off the wrapping and cutting into the organ, in every case he obtained organisms. In no case did he get the micrococcus of Freire.

In his cultures he found an organism which was altogether different from any heretofore described by reason of the mode of its growth in gelatine. In the first case from the intestine and stomach he got numerous colonies of an organism which, put in twenty per cent. gelatine, gave him colonies of a peculiar form, and he supposed he had a microörganism. In the next two cases he got different colonies.

In Executive Session the following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. Francis Minot, of Boston.

Vice-Presidents.—Drs. R. Palmer Howard, of Montreal, and S. C. Busey, of Washington.

Recorder.—Dr. I. Minis Hays, of Philadelphia.

Secretary.—Dr. Henry Hun, of Albany.

Treasurer.—Dr. W. W. Johnston, of Washington.

Councillor.—Dr. George L. Peabody, of New York.

The following were

ELECTED TO MEMBERSHIP:

Drs. Morris J. Lewis, of Philadelphia; D. W. Prentiss, of Washington; Norman Bridge and J. N. Danforth, of Chicago; Charles L. Dana, of New York; and Harold C. Ernst, of Boston.

Adjourned.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN NEUROLOGY.

W. R. BIRDSALL, M.D., CHAIRMAN.

Stated Meeting, October 12, 1888.

DR. CHRISTIAN A. HERTER read a paper on

THE THERAPEUTIC USES OF HYPNOTISM.

His object, he said, was to direct attention to the important therapeutic uses of this agent and to the best methods of employing it. The employment of hypnotism is attended with difficulty on account of the prejudices existing against it in the minds of the profession, as well as the public at large. It is, indeed, a subject that is still *sub judice*, and hence it is necessary to qualify any conclusions that may at present be arrived at concerning it. Hypnosis resembles ordinary sleep, with the element of "suggestion" from the operator added. Suggestion is effective, however, in the waking state also, as shown in the so-called Christian science and faith-cure, as well as to some extent as regards homœopathy.

Dr. Herter spoke at some length of the researches of Lieboldt, and described the six degrees into which he had divided hypnotic trance. This was at variance with the well-known division of Charcot, into catalepsy, lethargy, and somnambulism. Charcot's cases, he thought, should not be taken as a basis of conclusions because they were, as a rule, trained subjects. He had never seen the neuro-muscular excitability, so much spoken of, occur spontaneously, although he had found that it could be readily secured by suggestion.

He then described the proper method of producing hypnosis, as advocated by Lieboldt and Bernheim. The operator should first secure the patient's confidence, and then tell him to look him steadily in the eye and think of nothing but going to sleep. The process could be materially aided by suggestive remarks addressed to the patient, and by placing two fingers upon the face; the fingers being finally pressed gently upon the eyelids. In order to obtain good results it is necessary to watch the patient very closely, and to suit the words to the symptoms of sleep as they develop themselves. The *rationale* is very simple. Verbal suggestion in the

waking state makes the patient believe that he is falling asleep, and the method closely resembles the natural process. It had been found that men and women are about equally susceptible to hypnotism, the preponderance being only one per cent. in favor of the latter.

Dr. Herter next spoke of some of the conditions in which it had been employed as a therapeutic agent. He first referred to hysteria, which, he said, had been more written about than any other in this connection. Notwithstanding the literature that has accumulated concerning it, however, the special indications for resorting to hypnotism in it are still far from clear. It is probable that hypnotic suggestion might be of more or less service in all forms of hysteria; but, as a rule, the recovery, if secured, is not permanent. In old cases of contractures due to this cause, it is indeed often very difficult to get any appreciable result. The effect on hysterical amblyopia and amaurosis is extremely interesting, and in many cases a very marked improvement in vision has attended the persevering use of hypnotism. Of the motor paralyses, none is more benefited by hypnotism than abductor paralysis of the larynx. In hysterical convulsions the number and severity of the attacks are greatly diminished. He said that one need never be discouraged by failure to secure hypnosis at the first trial in any case of hysteria. The prospect of a cure would depend on various circumstances, and in many instances hypnotism would at all events serve as a useful adjunct to other treatment. Not much is to be hoped from it in hystero-epilepsy. He had personally employed it in two cases, but with no satisfactory results. In one of the cases profound stupor was induced, which resembled post-epileptic coma. The prospect was not encouraging in epilepsy either.

In several cases of chorea the effect on the movements was rapid and marked, and with perseverance a cure might sometimes be made in this affection. A number of daily sittings are generally required, and in some cases it is necessary to keep these up for months. Still, in any case of supposed cure there would always arise the question whether the disease had not simply run its course and ended spontaneously. There was the most ground for hope in those cases in which the movements were general, and the previous existence of rheumatism and endocarditis did not seem to render the chances of relief less favorable. In insanity the results from hypnotic suggestion have not, for the most part, been satisfactory. He had seen it tried quite extensively in the insane asylum at Zurich, Switzerland, but had never observed any benefit that was not evanescent. The largest number of experiments had been made in cases of paranoia, but the dissipation of the hallucinations sometimes effected was only temporary.

In delirium tremens its effect is often excellent, and quiet, restful sleep was sometimes secured by it in cases in which the same result could only have been obtained by the use of drugs in doses so large as to be dangerous. Alcoholism constitutes one of the most hopeful fields for its employment. The *séances* should be given twice daily for several months, and in many cases the patient becomes inspired by suggestion with disgust for drink. The same is true also of the opium, chloral, cocaine, and tobacco habits; but in all these cases surveillance in an asylum is, of course, an essential feature of the treatment.

Masturbation and other bad habits had been cured by hypnotism, and perhaps no more satisfactory results from its use had been observed in any other affection than incontinence of urine in children. Seiboldt had employed it in seventy-seven cases with a very large percentage of cures in those which remained under treatment for any length of time. The average age of the patients was seven years, and in two of these cases there was incontinence of feces in addition to the enuresis. The result obtained was the more gratifying from the fact that many of the cases had resisted all the ordinary methods of treatment. In various rheumatic affections Bernheim and others had reported fairly satisfactory results. Among these were lumbago and subacute, chronic, and gonorrhœal rheumatism. In chronic joint cases it was claimed that not only was the pain diminished, but that the nutrition of the joint was actually improved by the treatment. Dr. Herter thought that it was doubtful, however, whether any real effect upon the joint was produced. In neuralgias much benefit could be affected in recent cases, but if the trouble was chronic there was less chance of success. In some old cases of sciatica, however, good results had been claimed, and, at all events, the method was often of service in securing sleep, even if no permanent benefit could be looked for. In functional headaches it was of decided service, and in certain instances of migraine he had been successful in mitigating and cutting short the attack by its aid.

At first sight, it might seem that such an agency as this could have no effect upon a function like that of menstruation; but it had been practically demonstrated that in some cases not only the interval between the menstrual periods but the length of the periods themselves could be absolutely controlled by it. The number of individuals in which such results as these could be obtained was, however, comparatively rare.

As to the employment of hypnotism in surgery as a substitute for the ordinary anæsthetics the number of patients, with the exception, perhaps, of children, in whom it was available for major operations, is, no doubt, small, especially as the anticipation of having an operation performed is extremely apt to interfere with the success of hypnosis. On the whole, its employment in this field is not to be recommended, he thought, except in cases in which, for any reason, the use of anæsthetics was contraindicated. He had, however, seen a molar removed under its influence without the patient suffering any pain, or having any remembrance afterward of the extraction of the tooth.

Having spoken at some length of the use of hypnotism in parturition, Dr. Herter said that we are justified in arriving at the following conclusions regarding this subject:

(1) It induces sleep, and it is in no wise prejudicial to the efficiency of the uterine contractions.

(2) It has no tendency to produce post-partum hemorrhage, and is unattended by any other bad results.

(3) It is in no way comparable to chloroform in labor, and should only be used in those rare cases in which the usual anæsthetics are contraindicated.

In insomnia it can often be employed with good results, but it sometimes requires months of persevering treatment to effect a cure. In cases in which drugs have been resorted to it can be used in addition to the habitual remedy, the dose of the latter being gradually

diminished, and perhaps finally exchanged for a placebo. Among the other affections in which it has been tried are writer's cramp and paralysis agitans.

Among the objections which have been raised to the employment of hypnotism are the following:

(1) That it tends, in certain susceptible subjects, to produce temporary mental alienation; some individuals thus developing hallucinations during wakefulness.

(2) That some individuals fall asleep spontaneously, showing a tendency to auto-hypnotism. (This tendency, however, can always be antagonized by suggestion.)

(3) That some can readily be put to sleep by any one who chooses to do so. (This can also be antagonized by suggestion.)

In conclusion, Dr. Herter suggested the following general rules for those practising suggestive therapeutics:

(1) Never hypnotize any subject without first obtaining his or her formal consent.

(2) Always hypnotize in the presence of a third person.

(3) Never give any suggestions other than those which are necessary for the patient's improvement in health.

Public exhibitions of hypnotism, he thought, should be prohibited by law, and the use of this agency exclusively confined to the medical profession. One advantage connected with its employment in medicine is that it does not lose its effect by repetition. On the contrary, the subject becomes more and more readily influenced by it the oftener he tries it. From what had been said it could be seen, therefore, that suggestive therapeutics is not a delusion; and he had no doubt that, before many years, it will take a regular place in medical science. (At the conclusion of his paper, Dr. Herter exhibited on a female subject the method of inducing hypnosis.)

DR. BIRDSALL then read the

REPORT OF A CASE OF TREMOR TREATED BY HYPNOTIC SUGGESTION.

The patient was a young German, male, twenty-one years of age, who came to his service at the department for nervous diseases at the Manhattan Eye and Ear Hospital, suffering from tremor of the right forearm, which had made its appearance a short time previously, and which completely incapacitated him for his ordinary work. There were rapid flexion and extension of the arm, and the movements were so violent as to shake his entire body. A thorough examination failed to detect any organic disease of the nervous system or any other part of the body. His general health was unimpaired and his habits appeared to be exceptionally good. As he seemed to be rather an impressionable subject, it was determined to try the effect of hypnotism upon him. Hypnosis was readily induced, the arm becoming perfectly quiet under its influence, and he was told that when he awoke the tremor would not return. When he first came out of the trance there was no motion, but it soon came back to a slight extent. He was told, however, that it would stop altogether before long, and requested to return for a second treatment the following day. The treatment was repeated several times, and after the fifth *séance* the cure was complete. Later, when Dr. Birdsall had gone out of town for the summer, the patient returned to the hospital stating that the trouble had returned to a slight extent. It was again entirely cured by the same treatment, administered by the physician in charge, and some time after that the patient left town to reside in the South; since which he had been lost sight of.

This was, no doubt, a hysterical case, and to detect whether the young man was shamming or not the most severe tests were applied, both in reference to the tremor and the genuineness of the hypnosis. Dr. Birdsall said, in concluding his report of the case, that he believed that we are not justified in wholly discarding a method of treatment which has already shown itself so useful; though, of course he did not mean to contend that we should by any means attempt to treat all classes of cases by hypnotism, and thus place ourselves on a level with the faith-healers and Christian science people.

DR. OSGOOD MASON read a paper on

SIX CASES OF TREATMENT WITH ANIMAL MAGNETISM.

He said, in commencing, that as the term hypnotism is not altogether satisfactory, and as he had been in the habit of employing that of animal magnetism before the latter came into vogue, he still preferred to retain it, in the absence of any better designation. The first of his cases he had treated eighteen years ago, and was that of a female completely broken down in health from overwork and anxiety, who suffered especially from headache. The treatment by hypnotism was repeated ten or twelve times with great improvement to her health and comfort. The second case was that of a female, twenty-two years of age, suffering from hysterical paralysis and subject to hallucinations and violent screaming fits, and she also was greatly relieved. The third patient was an Irish girl of fifteen, who suffered from epileptic attacks. The bromides were first tried without any appreciable effect. Under treatment by hypnotism, however, there was marked improvement, although she did not remain very long under observation. The fourth patient was a lady of gouty diathesis, who suffered from chronic rheumatism and was in wretched health generally. She was treated twice a week for three months, at the end of which time she returned to England, where she had formerly lived, greatly improved. The fifth patient was a lady who suffered from a painful neuritis of a traumatic origin, and finally died from inanition. Her case was referred to simply on account of one peculiar effect produced by the hypnotic treatment. It was a remarkable fact that every time that the treatment was repeated her hand, which was usually cold and of a blue color, was temporarily restored to its normal condition. The sixth patient was a girl of fifteen, suffering from epileptic attacks, who came under observation August 31, 1885. Finding that medicinal treatment was entirely unsatisfactory, he tried hypnotism with very gratifying results. The *séances* were repeated twice a week, and the number of the attacks, which at first occurred from six to ten times a day, was soon reduced to one or two a week, and afterward to one or two a month. In about five months they disappeared altogether, when the treatment was discontinued. Three weeks after this was done, however, she had two attacks; in consequence of which the treatment was resumed, and kept up regularly for three months. Since then there had been no return of the trouble whatever.

The deductions which Dr. Mason said he had derived from these and other cases which he had observed were as follows:

(1) Animal magnetism is of decided value as a therapeutic agent.

(2) Sleep is not always necessary for the production of the greatest benefit.

(3) It has the effect of equalizing the circulation.

(4) It also regulates and equalizes nervous action.

Corollary: The equalization of the circulation is the result of the equalization of nervous action.

Mr. Corey, of Boston, Chairman of the Committee on Hypnotism of the American Society for Psychical Research, then read a paper on

THE THERAPEUTIC VALUE OF HYPNOTISM.

He spoke particularly of the results reported by M. Voisin in certain cases of insanity. He also referred to many of the affections spoken of in Dr. Herter's paper, and expressed the opinion that hypnotism would undoubtedly prove of great service in properly selected cases in medical practice. In the latter part of it he dwelt at some length upon the medico-legal aspect of the subject, and spoke of the danger that hypnotized individuals might be induced by the unscrupulous to commit criminal acts.

Dr. Kremer said that his experience with the method had been comparatively small. He had, however, tried it in six or eight cases of a neurasthenic or hysterical character. Three of these presented points of special interest, and he said he would relate them. The first was that of a young girl with hysterical aphonia, who readily succumbed to the hypnotic influence. He was, however, unable to make her speak while hypnotized, and three or four months afterward the aphonia got well spontaneously. It seemed to him that the effect of hypnotism on this patient was bad. It was a fact worthy of note that, on one occasion, he extirpated an ingrown toenail for her, while hypnotized, without her feeling any pain. The second case was one of paralysis with spastic contraction, so that the patient could not put the heel to the ground. Under the influence of hypnotism the spastic condition entirely disappeared, and the knee-jerk, which had been abnormally marked, diminished. Otherwise she might have been treated for lateral sclerosis. The third case was one of hysterical cough, in which there seemed to be a hyperæsthetic condition of the entire respiratory tract. Cocaine was employed for a considerable time, but noticing a tendency to cocaine poisoning, Dr. Kremer employed hypnotism. The cough was completely stopped, but the alleviation was only temporary. He thought that in this class of cases there were other remedies which would act as well as hypnotism, and that in cases of neurasthenia it had a general depressing effect. In one case he had had considerable difficulty in arousing the patient from the hypnotic sleep, and in several instances he had found that the treatment gave rise to headache and malaise. On the whole, his experience with the method had not been very favorable.

Dr. C. L. Dana mentioned the case of a child of a neurotic family, who was suffering from vomiting and intense headache, in which, after other remedies had proved inefficient, complete recovery was secured by hypnosis repeated twice. After referring to two other cases, he said that it was something of a coincidence that at the time when the convention of the "Christian Alliance," composed of those who believed in faith-healing, was treating the subject of suggestive therapeutics empirically, it should be discussed at the Academy of Medicine from a rational point of view. He said that five or six years ago, when the method of Bray was in vogue, he had studied hypnotism with considerable care, and he had known of one subject, a young girl of nervous temperament, who was affected with convulsive attacks in consequence of the treatment. While the methods of Bernheim and Lieboldt are much less objectionable, he did not think that the practical application of hypnotism was of very wide range. There are comparatively few individuals who are suitable subjects for treatment by it, and there are but few physicians who are willing to devote the time necessarily required by the method.

Dr. Dana thought the so-called faith-cure and Christian science should be prohibited by law, and expressed the opinion that it was better for a person to remain ill rather than to be cured by such agencies, which tend to produce paresis of the will and eventually to bring about a certain amount of volitional degradation.

Dr. Herter said, in reply to Dr. Kremer, that he had never had any difficulty in arousing a patient from the hypnotic sleep, although he had seen the method tried on more than one hundred subjects. The only exception was in an individual who had been in a spontaneous condition of trance previously. He did not think this a valid objection to hypnotism, and as to the headache and malaise referred to, he thought these could always be prevented by suggestion before allowing the patient to awaken. He had never noticed any depressing tendency about the treatment. He agreed with Dr. Dana entirely as to the bad effects of Bray's method with the bright light, which had been known to give rise to epilepsy and convulsions, but said that he did not know of any evil results from the method now employed. It is comparatively easy to hypnotize a considerable portion of people, although he thought that in the higher classes of society it is more difficult to get subjects sufficiently passive than it is in people of the middle and lower classes.

NEWS ITEMS.

The Philadelphia Polyclinic Course of Evening Lectures.—The second annual series (Part I.) of evening lectures on practical subjects will be given by the Faculty of the Philadelphia Polyclinic, at the college building, Broad and Lombard Streets, free to members of the profession and to medical students, and in the following order, beginning at 8 o'clock:

October 23d, Prof. Henry Leffmann, "The Recognition of Poisoning."

October 30th and November 6th, Prof. Thomas J. Mays, "Pulmonary Consumption Considered as a Neurosis."

November 13th, Prof. Charles K. Mills, "Visual Localization."

November 20th, Prof. J. Henry C. Simes, "Pseudo-sexual Disorders."

November 27th, Prof. S. Solis Cohen, "The Management of Fever, with especial reference to High Temperatures."

December 4th, Prof. H. Augustus Wilson, "The Preparation and Application of the Plaster-of-Paris Bandage."

December 11th, Prof. John B. Roberts, "Treatment of Leg Ulcers."

December 18th, Prof. Edward Jackson, "Failure of Sight in Old People."

January 8th, Prof. Charles H. Burnett, "Some Common Causes of Deafness; Prevention and Cure of the Disease."

January 15th, Prof. Alexander W. Mac Coy, "Observations on Certain Forms of Hoarseness."

January 22d and 29th, Prof. Benjamin F. Baer, "Pelvic Inflammation: its Causes, Complications, and Treatment."

Part II. will be announced hereafter.

Disinfection in Cases of Contagious Disease.—In a disinfecting establishment in Berlin, one may have disinfected by compressed steam any article capable of absorbing infectious matter. Two marks (fifty cents) are charged for calling for and delivering, including disinfection, of articles occupying the space of one-half cubic metre (0.65 cubic yard); and four marks (ten cents) for each additional one-tenth cubic metre (0.15 cubic yard). The articles are returned within forty-eight hours. From April 1 to December 31, 1887, "in only a small proportion of the cases of contagious diseases officially recorded was this means of disinfection used, and in many cases probably all articles which might be infected were not sent." During this time, some ten thousand cases of infectious disease were reported, and disinfection was employed in seventy-four thousand. The best results were seen in diphtheria (15.9 per cent.).

The police department of Berlin requires unequivocal disinfection in case of Asiatic cholera, of variola, of typhus and relapsing fevers, and in diphtheria, and disinfection when officially directed in case of scarlet fever, of epidemic dysentery, of measles, of whooping-cough, and of phthisis. Besides, disinfection of dwellings is obligatory in the affections mentioned, consisting of scrubbing with five per cent. solution of carbolic acid, and rubbing the walls with bread. Guttmann recommends spraying, with a suitable apparatus, the walls with a one per cent. solution of corrosive sublimate, and, subsequently, wetting the walls with a one per cent. solution of carbonate of sodium, to render the sublimate innocuous. The oxychloride of mercury is precipitated, which may be readily removed. Dr. Hanstein states that a one per cent. solution of corrosive sublimate may be unhesitatingly applied, alone or with a five per cent. solution of carbolic acid. Those engaged in the work have not suffered in the slightest, if they have worn masks. The disinfection of a moderately large room occupied two workmen three hours.—*Centralblatt für die gesammte Therapie*, Sept. 1888, from *Berliner klin. Wochenschr.* No. 22, 1888.

Bacteriological Investigations into the Water and Air of the City of Warsaw.—Following are the results of the investigations of Bujwid into the condition of water and air of the city of Warsaw. No pathogenic microörganisms are ordinarily found in the air; it therefore follows that disinfection of hospitals and operating rooms is of no practical value or significance. Certain microörganisms which may be found in the air Bujwid failed to find during investigations over a period of three years. Of those found in the air non-pathogenic, but one not yet known gives rise to suppuration in mice and rabbits; the rest are innocuous. The number of bacteria in the air is subject to great variations and depends largely upon the winds and conditions of habitation. After a rain or snow the number is smaller. Basement rooms and abodes contain the largest numbers. On an average, one hundred thousand times more bacteria are found in water than in air. Good water should not contain more than three hundred rod bacteria to the cubic centimetre (0.06 cubic inch). Different results were obtained from the examinations of water from various springs and running streams; above the city the water contained about three hundred bacteria, in the midst of the town over fifty thousand to the cubic centimetre. Bujwid found no pathogenic microörganisms whatever. After filtering this same water (sand filters have recently been introduced into Warsaw) the proportion of bacteria diminished from twenty to sixty. Spring water contains a still larger number of microörganisms. In the discussion which followed, Barzyci stated that in a village near the city of Rzeszow, having no spring, a peasant living by the creek was affected with typhoid. His linen was washed in the stream. Shortly, many of the inhabitants, who obtained their drinking water from the creek and who lived below the house in question, likewise sickened with typhoid; all living above escaped.—*Wiener medizin. Presse*, No. 34, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 8 TO OCTOBER 15, 1888.

Meacham, Frank, *Major and Surgeon* (U. S. Army).—Died at Fort Douglass, Utah Territory, October 9, 1888, at twenty minutes past 1 P. M.

By direction of the Acting Secretary of War, Louis M. Maus, *Captain and Assistant Surgeon*, is relieved from duty at Fort Schuyler, New York, and will report in person to the commanding officer Fort Ponter, New York, for duty at that post.—Par. 10, *S. O. 236, A. G. O., Washington*, October 10, 1888.

By direction of the Acting Secretary of War, leave of absence for two months is granted William G. Spencer, *Captain and Assistant Surgeon* (U. S. Army).—Par. 11, *S. O. 236, A. G. O., Washington*, October 19, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING OCTOBER 13, 1888.

Bates, N. L., *Medical Inspector*.—Detached from the "Pensacola," and placed on waiting orders.

Farwell, W. G., *Surgeon*.—Ordered to U. S. Receiving Ship "Franklin."

Scott, H. B., *Passed Assistant Surgeon*.—Detached from the New York Navy Yard, and ordered to the Naval Hospital at Mare Island, California.

Magruder A. F., *Surgeon*.—Ordered to duty at headquarters of Marine Corps.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

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THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, OCTOBER 27, 1888. NO. 17.

ORIGINAL LECTURES.

OSTEOPLASTIC RESECTION OF FOOT.

Extract from a Clinical Lecture
Delivered at the German Hospital, October 13, 1888.

BY FERDINAND H. GROSS, M.D.,
VISITING SURGEON TO THE GERMAN HOSPITAL.

BEFORE showing you an operation this morning, I propose to begin the surgical clinics of this hospital for the ensuing season, by making some remarks upon the case which is here brought before us.

The patient, Charles B., is a laborer thirty years of age, upon whom I performed, between three and four months ago, an osteoplastic resection of the foot. It was done for caries of the largest two tarsal bones, namely, the astragalus and os calcis.

In regard to the family history of this man, which is otherwise good, we learn of the unfavorable circumstance that his mother, who is still living, has had some kind of ulcers upon one of her legs for the past ten years; but that, aside from this, she enjoys fair health. Concerning himself the patient states that in his early childhood he had two sores on his right heel, which remained open for two years; but that his foot afterward gave him no trouble until 1885, when half a dozen sinuses formed about the heel bone, and that for these he had been treated for eighteen months in the hospital of a neighboring county. The patient has no recollection that his foot was ever injured by violence. Taking into account the additional fact that when he was admitted into this institution last January with two of the sinuses still existing, he was also suffering with an ulcer of the cornea, we cannot easily dismiss the belief that there is here a dyscrasia, some defect in the nutritive system, although his appearance now is excellent, and his general health quite good. The eye ulcer was quickly cured, when my colleague, Dr. Deaver, who was on duty at the time, operated upon the foot for necrosis and removed some dead bone. This was followed by marked improvement, but not by radical relief. At the time of my own operation on the 18th of June, a carious condition of the calcaneo-astragaloid joint was readily made out by the probe coming in contact with the rough dead surfaces of the two bones.

The operation to which recourse was had is one of modern device, and but few surgeons have as yet put it into practice. It has been performed but twice in this city, once by my friend, Dr. William B. Hopkins, of the Episcopal Hospital, and once when it was done upon the patient here presented.

This ingenious surgical procedure was originally planned and successfully carried out in 1871 by Wladimiroff, of Russia. Strange to say, it seems to have remained unknown to surgeons of other countries until nine years later, when Mikulicz, of Vienna, performed the same operation; without, however, being aware that it had been previously done by his Russian *confrère*. The operation now bears the names of both of these distinguished men, and is known as the "Wladimiroff-Mikulicz's osteoplastic resection of the foot."

The indications for the operation are, caries of the tarsal bone I have mentioned, and extensive and irreparable loss of tissues of the heel, whether such loss be the result of disease or traumatism. It has been resorted to most frequently for the former cause, but in a small proportion of those cases the disease subsequently extended to other bones, and in one gangrene occurred, making amputation necessary. Nevertheless, the result upon the whole has been very satisfactory.

You will notice from what remains of the foot, and more especially from its unusual position, that it bears some resemblance to talipes equinus, and Wladimiroff originally described his operation as an artificial production of that deformity. In the variety of club-foot to which reference is made, the heel is drawn up by the shortened muscles of the calf, and in extreme cases the weight of the body is carried upon the anterior termini of the metatarsal bones and plantar surface of the toes.

In carrying out the procedure under consideration, which consists of several separate and distinct steps, the aim is to bring the metatarsus into a continuous straight line with the leg by planting the anterior half of the foot in a vertical position upon the ends of the tibia and fibula. To do this in a satisfactory manner, it is necessary, on the one hand, to remove a thin section of the articular surfaces of those bones, as is done in Syme's amputation at the ankle-joint, and, on the other, to remove the posterior surfaces of the scaphoid and cuboid.

Having given you in a general way a conception of the operation and its purpose, it remains to explain the successive steps as they were carried out in this case.

After thorough etherization of the patient, the first step consisted of a posterior tibial neurectomy. For this purpose an incision was made over the course of the nerve behind and below the malleolus, extending forward as far as the tuberosity of the scaphoid. The nerve having been raised from the wound, a piece of it two inches in length was excised. Later on you will understand why this was done. The patient was then placed upon his abdomen with the foot projecting over a firm cushion on which his leg rested, and the sound limb held out of the way.

In the second step, an incision was made across the sole of the foot boldly dividing all the tissues down to the bones, beginning at the tubercle of the scaphoid and ending at a point about three-fourths of an inch behind the tubercular eminence of the base of the fifth metatarsal bone. To understand clearly the relative position of the operator to the patient, you must bear in mind that we are dealing with the right foot. The next incision was started from the upper end of the one made for

the excision of the posterior tibial nerve, the knife being guided through the tendo-Achillis a half inch above the os calcis and thence along the outer side of the foot until it entered the cut made through the sole, when all became continuous in one incision; thus mapping out the part to be removed.

In the third step were included disarticulation of the two diseased tarsal bones, ablation of the ends of the tibia and fibula and posterior surfaces of the scaphoid and cuboid. Disarticulation of the astragalus at the ankle-joint was accomplished from behind forward, whilst in front this bone and the os calcis were detached from below upward, the one from the scaphoid and the other from the cuboid. Here I show you the specimens, which have been preserved; this large mass contains the astragalus and os calcis, here you have the posterior surfaces of the scaphoid and cuboid, and here the section from the tibia and fibula. The two first-named have become united on one side by bony ankylosis. By removing a section from the specimen with the saw, the diseased condition of these bones is made apparent. To continue the description of the operation, the next thing to be done was to remove the remaining band of the Esmarch apparatus which had been applied early, and secure all bleeding points by catgut ligatures. One of the terminal branches of the posterior tibial artery was severed near its origin while some abnormally hardened tissues were being dissected from the bone. The two plantars must be divided a little further down, but the blood-supply to the foot depends mainly on the integrity of the dorsalis pedis.

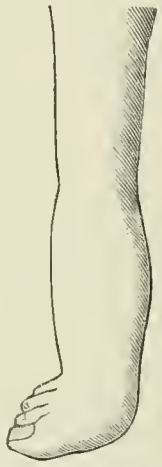
The large gap was next closed by bringing the foot into its new position; and in order to procure the best possible fixation between the tarsal bones and those of the leg, two sterilized bone pegs, three inches in length and three-sixteenths of an inch in diameter (which were kindly supplied by Dr. Hopkins), were sunk into holes drilled two inches deep into the tibia. Corresponding holes having been drilled, one into the scaphoid and another into the cuboid, each an inch deep, the foot was impaled upon the end of the tibia by means of the projecting pegs. During this stage of the procedure the ends of the retrenched posterior tibial nerve were brought together by two fine nerve-sutures, the tendon of the peroneus longus, which had been shortened by the excision of a considerable piece, was reunited by strong catgut, and the tendo-Achillis was stitched fast to the divided plantar fascia. Several strands of large sized catgut were placed in the wound to facilitate drainage, and, finally, the edges of the skin were approximated by a number of interrupted sutures.

The operation was performed under thorough antiseptic precautions, and during its progress the wounded parts were repeatedly douched by a solution of bichloride of mercury from the irrigator which you see suspended over the operating table.

The limb was secured to an anterior splint of heavy surgical felting, consisting of leg and foot pieces riveted to a long iron bar curved over the ankle region in such a manner as to leave an interval between the pieces of felting at that place. The wound was well covered by antiseptic materials, and the limb suspended at a comfortable height above the bedding by means of rings on the anterior splint. In this position it was an easy matter to apply the subsequent dressings.

The greatest elevation of temperature was reached on the third day after the operation, when the thermometer indicated 101.2° F., but on the following morning it had fallen to 99° F., and thereafter remained within favorable range. The dressings were, as a rule, renewed every three days, the wound always having a favorable appearance, and during the entire healing process there were no deep suppurating tracts communicating with bone. As you see the patient to-day everything looks well.

At the end of ten weeks union was sufficiently firm to justify, under the influence of ether, the forcible turning up of the toes, which for a long time had been held rather immovable from false ankylosis.



With a supporting bandage at the seat of union and by the aid of crutches, with which he expects soon to dispense, he is now practising locomotion about the wards of the hospital.

ORIGINAL ARTICLES.

TRAUMATIC ANEURISM OF THE LEFT BRACHIAL ARTERY.

Failure of direct and indirect pressure; ligation of the artery immediately above tumor; return of pulsation on the tenth day; ligation immediately below tumor; failure to arrest pulsation; incision and partial excision of sac; recovery.

By RUDOLPH MATAS, M.D.,
VISITING SURGEON CHARITY HOSPITAL, ETC., NEW ORLEANS, LA.

Notwithstanding the fact that in these latter days the integrity of the brachial artery has ceased to be endangered by the practice of venesection, still, traumatic aneurisms of this vessel are sufficiently common and amenable to ordinary treatment to merit for the records of such cases no other than a commonplace interest. The exceptional features presented by this case, as indicated by the heading, are sufficiently instructive and interesting, it is hoped, to commend this report to the attention of the reader.

The patient, Manuel H., colored, laborer, native of Louisiana, æt. twenty-six, was admitted into Ward 2, Charity Hospital, April 30, 1888. The

history given by patient was, to the effect, that two months before admission he was accidentally shot with a rifle, the whole load, consisting of fine bird shot, being distributed in the scapular, posterior acromial, and humeral regions of the left side, the gun having been fired at a distance of about fifteen feet from the patient. Two weeks after the shooting and when he believed himself completely recovered from the effects of the injury, he noticed a swelling on the inner and posterior aspect of the arm, nearly midway between the bend of the elbow and the lower border of the armpit. This swelling "throbbed" and rapidly increased till it attained its present dimensions.

Condition on admission.—Patient is a robust, tall, and very muscular negro, to all appearance perfectly healthy, outside of the local trouble for which he seeks relief, and without any history of hereditary or acquired taint. On stripping the patient, the left arm presents a marked contrast to the opposite member; it is decidedly larger as shown by the most superficial inspection, presenting an elongated, fusiform swelling which pulsates. On closer inspection it is also noticed that the skin over the scapular, acromial, and posterior humeral regions is closely sprinkled with small dark cicatricial dots which indicate the points of entrance of the small shot; an opinion which is confirmed by the ready detection, by palpation, of the shot as they lie, for the most part, encysted, subcutaneously, at the very point of entrance. It is found that the prominence of the tumor begins, above, about three inches from the lower border of the pectoralis major and terminates below at a point one and one-half inches from the bend of the elbow. The circumference of the affected arm at the most prominent part of the tumor is fourteen and five-eighths inches that of the healthy arm at the same point being twelve inches.

Inspection reveals pulsation which is confirmed by palpation. A marked thrill is also detected in the most prominent and apparently thinnest part of tumor; a decided purring murmur is heard on auscultation, and it is noticed that the pulsation is diffused, characteristically expansive, and synchronous with the radial beat. Pulsation, thrill, and all the active phenomena manifested by the tumor are immediately arrested by pressure over the axillary lower third, or subclavian, above clavicle. Pressure on axillary, sufficient to arrest radial pulsation, causes marked diminution in size of tumor, but this reduction is best marked after application of the Esmarch bandage, under which the circumference of the arm is quickly reduced to twelve and six-eighths inches.

Diagnosis is, plainly, traumatic aneurism of the brachial artery.

Treatment.—In view of the readiness with which the circulation in the tumor was controlled by pressure, the Esmarch was applied; but this had to be removed ten minutes after application owing to the intolerable pain and almost agony that it produced. The patient protested so emphatically against this method of treatment (Reid's method) that it was not repeated.

The next day, April 1, the patient was put to bed, the diet was reduced, veratrum viride, potass. iod., and ergot were administered, and the Massachusetts General Hospital compressor was carefully adjusted to the brachial, just above the aneurism. At the same time, the forearm was tightly flexed on the arm. The patient bore the compressor, screwed sufficiently tight to arrest the radial pulsation, for forty minutes, when the pain became intolerable and the pressure had to be diminished. The compressor was subsequently applied, only lightly enough, however, to slacken the circulation in the tumor and weaken the radial pulsation.

April 22. The compressor has been alternately compressed and relaxed but kept on the artery all day and all night under the supervision of Mr. Sherck, the *interne* of the service. The patient gives evidence of having passed a wretched and sleepless night owing to pain from the compression. On removing the compressor, the tumor pulsates most vigorously and the arm measures now fifteen inches in circumference, showing an increase of three-eighths inch since the beginning of treatment.

23d. The compressor has been kept moderately adjusted, the forearm flexed on the arm and the arm on shoulder; the arm being kept in this position of forced flexion by a well-adjusted bandage which fixes it to head. The patient, who is anxious to get well and is willing to do all in his power to facilitate a cure, has stood with fortitude the ordeal imposed upon him, though an occasional hypodermatic injection of morphia has been required to help him, especially at night-time. The tumor, in the meantime, has not been in the least affected by the therapeutic measures thus far instituted. It pulsates more vigorously than ever, the arm has gained one-eighth inch more in circumference, and the sac is apparently becoming much thinner on the inner aspect of the arm where it threatens to rupture. In view of the unfavorable outlook, it was decided to ligate the brachial in its upper third, just below the superior profunda and immediately *above* tumor. This was done under careful antiseptic precautions, and without difficulty; the artery being ligated with a Kocher's catgut No. 9 (juniper oil), the ligatures cut short, and the incision closed without drains.

Immediately after ligation the pulsation and all the active phenomena in the aneurism were arrested. The tumor became hard, the radial pulse imperceptible. The arm shrank one and one-half inches at maximum circumference of tumor.

30th. Dressing removed, union by first intention throughout wound. Tumor does not pulsate, but has shrunk very little since day of operation.

May 2. In examining the case, my attention was directed to a slight localized pulsation in the tumor, by one of the students in attendance. This pulsation became more marked the next day and progressively continued until it was almost as pronounced, and the tumor as painful, as when patient was first seen.

6th. I decided to ligate the distal end of artery *immediately below tumor* at bend of elbow, and in case of failure to control the pulsation thereby, to apply the Esmarch and lay open the sac and seek for the intermediary nutrient branches.

Operation.—A catgut ligature (Kocher's, 9) was applied to the brachial at the bend of the elbow without the slightest perceptible effect on the pulsation or size of the aneurism. The Esmarch was then applied and an incision was made along the whole length of the tumor extending from the primitive incision for the ligation of the brachial, close to the lower border of the axilla, to the bend of the elbow, about six and one-half inches. The sac was at once exposed, and, with the hope of extirpating it, a close though rapid dissection was begun which succeeded in isolating both ends of the sac and the major portion of its anterior and internal aspect; it was found impossible, owing to intimate connection of the sac with the important and deeper structures of the arm, especially with the biceps and brachialis anticus, to continue the dissection toward the humerus.

The dissection and isolation of the sac were therefore stopped and a large incision made throughout its whole length; at the same time an elliptical piece of sac, representing its exposed portion, was excised, and the clot which was partially laminated, but mostly passive, in its central parts, was turned out in larger quantities, the whole cavity being constantly and thoroughly irrigated with a 1 : 2000 acid sublimate solution (Laplace's). By this means three orifices were readily detected at the bottom of the sac, two of these being large enough to admit readily a No. 8 gum catheter; the middle orifice only offering some resistance to the catheterization.

The gum catheter was first passed into the orifice nearest the axilla and it readily passed upward inside of the artery until it stopped at the point where the first ligature had been applied sixteen days previously, proving clearly that that was the proximal axillary end of the aneurism. A catgut ligature was once more applied while the catheter was *in situ*, the catheter, which served as a perfect guide, being withdrawn as the ligature was tightened. The introduction of the catheter into the lower orifice led at once to the bend of the elbow, where it was arrested at the point where the ligature had just been applied. It remained now to close the third or middle orifice, which was smaller and apparently had no connection with the two preceding; this orifice I presumed to be the orifice of a much dilated inferior profunda. This orifice was completely sealed by passing four fine interrupted silk sutures (for want of fine catgut) through its lips. The Esmarch constrictor was then relaxed and I was considerably surprised to notice a decided flow of blood from the other two orifices notwithstanding the fact that the vessels with which they communicated had been apparently controlled by previous ligature at the proximal and distal extremities of the sac; this showed plainly that there must be some important collaterals which communicated with the vessels between the points of ligature and the internal or aneurismal orifices. In view of this I immediately stitched the lips of the orifices with *fine* sublimated silk, by which means the openings were sealed completely and not a drop of blood entered the sac henceforth. A strip of acid sublimated gauze (Laplace's) was then left in the sac instead of a drain and deep interrupted sublimated silk and catgut sutures applied.

In addition to the usual antiseptic dressing the whole arm was wrapped up in cotton wadding and hot bottles were kept to the forearm and hand.

7th. Patient has passed a restless night and suffered great pain at site of wound. Temperature 102° F.

In view of this, dressings were removed under antiseptic precautions, and the cause of the trouble discovered to be an intense erythema and *complete* vesication of the edges of the wound, owing to the overzealous application of the too strong and caustic 1 : 500 acid sublimate gauze. The trouble could have been obviated by using a weaker gauze, or previously protecting the skin with a layer of Lister's protective or iodoform gauze.[1] A milder gauze (1 : 1000) was substituted and the wound dressed otherwise as usual. From that date onward the wound gave no further trouble; it granulated without further suppuration and the patient was discharged completely cured and with only a linear cicatrix to indicate the site of the aneurism, May 21, 1888.

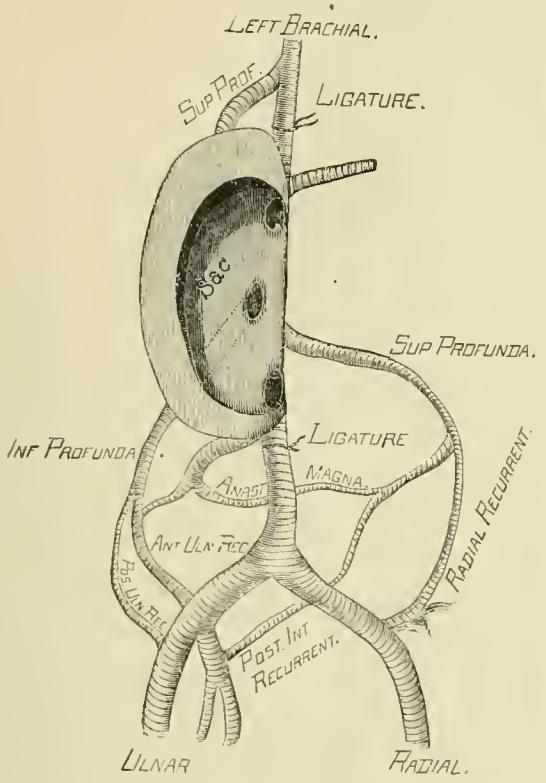
Remarks.—An eminent authority[2] has written: "Deligation of the brachial, or of the lower part of the axillary artery for aneurism is so very generally successful and is so slight an operation that but a small number of cases are published." It is to the fact that the case under consideration proved so marked an exception to the general rule thus stated that it owes its main interest. It will be noticed that (1) after the failure of the various measures that had been instituted to diminish the circulation in the sac, (2) the brachial was ligated at what might be called the point of election in the upper third of the arm, just below the origin of the superior profunda and immediately above the sac; that (3) apparent cure followed the deligation of the artery at this point, (Anel's operation); that (4) pulsation returned on the tenth day, and with it all the other aneurismal symptoms; (5) that four days after the return of the aneurismal symptoms a ligature was applied to the brachial at the distal end of the sac; (6) that notwithstanding this ligature the tumor still pulsated and its size remained totally unaffected; (7) that after incising at the same sitting and clearing the sac (old operation) the orifices of three arteries of supply were readily discovered and the inefficiency of the ligatures easily explained, as will be readily understood by referring to the accompanying diagram; (8) the ease and the thoroughness with which the bleeding orifices of the nutrient vessels were sealed by the method employed, viz., *suture;* (9) lastly, the rapid recovery of the patient and the equally prompt healing of the wound in spite of the extensive traumatism inflicted.

Tripier, an excellent authority, states in a valua-

[1] Vide article on "Corrosive Sublimate" by Dr. F. W. Parham, New Orleans Medical and Surgical Journal, June, 1888.

[2] Barwell, Ashhurst's Encyclopædia of Surgery, 1883.

ble contribution on the pathology of the brachial artery[1] that "in all cases of circumscribed traumatic



Schematic representation of the collateral circulation in the case of M. H.

aneurism we should always try indirect digital compression if it is possible to apply it. If it does not succeed, then we must chose between the ancient method and that of Anel. The ancient method is of more *difficult execution*, but it is incomparably more certain in its results, as it more positively guards against relapses and hemorrhages. It is certain, however, that by Anel's method some very good results have been obtained; but in a certain number of cases it has failed and the surgeon has had to appeal to the ancient method. Several instances of this sort have been recorded. The most complete and instructive [thus far, 1869] having been that of Brodie, who in 1820, in a case of brachial aneurism resulting from an unfortunate venesection, applied a ligature to the brachial about seven centimetres above the tumor. The aneurism returned about five months after; a second ligature about three centimetres above the aneurism was now applied [and the sac opened.—R. M.]; the tourniquet was removed and hemorrhage followed from the sac. A fresh ligature was now placed immediately below the sac; the tourniquet was again removed, and another gush of blood followed from the sac; then a fourth ligature was placed *immediately* above the tumor and this did finally control the hemorrhage."

This was certainly an obstinate case; but energetic as were the procedures adopted by Brodie they would have failed with the aneurism now reported, as, in this instance, the ligature immediately *above* and *below* the sac completely failed to check the circulation in the tumor. It is plain that no other method would have succeeded but that which was adopted, *i. e.*, the free opening of the sac and *the closure of the orifices of supply in the sac itself.* It is in accomplishing this last result that we have an opportunity of observing the advantages gained by the improved technique of the present day.

It is doubtless greatly due to the difficulties formerly experienced in attempting to secure the nutrient orifices in the sac that Tripier and the majority of contemporary writers who appreciate the thoroughness and great merits of the Antyllian operation for aneurisms of the extremities, still regard it as of "more difficult execution." In the light of my recent experience, I feel convinced, however, that this is one of the difficulties of the operation which is most easily surmounted. It will be remembered that Boyer, Günther, and other older surgeons already recommended the introduction of bougies or catheters into the aneurismal openings in order more readily to isolate and secure the proximal and distal ends of the artery. By this means they succeeded readily enough in securing the distal and proximal end of the tumor, but only beyond the limits of the sac, so that the intermediary branches, which, as in the case here recorded, are sometimes so troublesome, were not intercepted by the ligature and continued to bleed in spite of it. In order to secure these collaterals, which communicate with the main vessel between its immediate extra-aneurismal portion and its proper opening, or mouth, in the sac, the method recently suggested and practised by Annandale offers great and positive technical advantage.[1] This method consists "in introducing a bougie of suitable size into the openings from the side of the sac, in making a small incision through the wall of the sac on each side of the bougie, and in passing an aneurism needle through these round the vessel, the ligature being tightened as the bougie is carefully withdrawn."

In the present instance the bougies were only used to apply ligatures outside of the sac; the bleeding orifices within the sac having been thoroughly sealed by a few fine sutures. This procedure served me so satisfactorily, that I cannot but heartily recommend it to those who may be placed in similar circumstances.

[1] Article "Brachiale," Dechambre's Dictionnaire Encyclopedique des Sciences Médicales.

[1] Vide Edinburgh Medical Journal, February, 1886; also, Editorial, in The Medical News, May 29, 1886.

In addition to this important detail, we might add that the complete ischæmia of the limb which is solely obtainable by the Esmarch bandage, which so readily adapts the parts to the difficult and delicate dissections sometimes required in the practice of this operation; also the introduction of the animal ligature, which has so thoroughly revolutionized the practice or, at least, the principles of arterial deligation to such a degree indeed that, in future, the so-called spontaneous or idiopathic aneurisms will, in many cases, be treated with the ligature in as close a proximity as the purely traumatic. Again, the superiority of the antiseptic practice which totally suppresses or greatly minimizes the risks of suppuration, risks that were so unavoidable and disastrous in the older days; and, finally, that greatest and grandest of the advantages of the modern surgeon —anæsthesia—which allows the operator to cut with a calm and deliberation that were denied his ancestors, are all circumstances which are conspiring to return to the "old" operation the prestige which has been necessarily denied it for so many years.

AN ENVIRONMENT EXPERIMENT REPEATED 1888.[1]

By E. L. TRUDEAU, M.D.,
of Saranac Lake, N. Y.

In a paper read before this Association at its last session some experimental evidence was adduced which tended to show that, at the first step of artificial tubercular infection, the pathogenic properties of the tubercle bacillus and the natural resistance of the tissues are so closely balanced that infection may often be prevented and always hastened by the nature of the environment in which inoculated animals are placed.

In order to complete this research, a confirmation of the evidence already obtained as to the favorable influence of a good environment over the course of the disease has been sought for, while two points relating to the experiment in which the rabbits were allowed to run wild and failed to become infected, have seemed to merit further study. The first relates to the quantity of virus made use of, and the second to the permanency of the beneficial influence exercised by favorable surroundings. Whether the animals would have escaped equally well had the amount of bacillus-bearing fluid injected been larger, and whether their apparent recovery was permanent or only temporary, are questions to which an answer has been sought by a repetition of the former experiment with such variations only, as would tend to throw light on these points.

On June 10, 1887, six full-grown, healthy rabbits, were inoculated in the right lung with a quantity of a pure culture of the tubercle bacillus, as nearly as could be estimated, at least twice as large as that made use of in the experiment of 1886. They were at once turned loose on the same island and supplied with an abundance of food throughout the entire summer. After being permitted thus to run at large for four months, three of them were killed, while the remaining three were placed in a box and spent the following four months in confinement in a sandy pit, on a moderately restricted diet. At the expiration of four months they too were killed and their organs examined.

Lot No. 1.—Killed as soon as removed from a favorable environment. In the first rabbit no lesion whatever, was observed; in the second extensive and advancing tuberculosis of both lungs, with caseation at many points in the injected lung, was noted; while in the third, a thoroughly localized lesion, consisting of a small fibrous cyst, containing hard putty-like material and attached to the costal pleura at the site of inoculation, was the only disease present. In the centre of this fibro-calcareous nodule a few bacilli with spores were demonstrated by staining. All the organs were sound and the animal was loaded with fat.

Lot No. 2.—Killed four months after removal from favorable to less favorable surroundings. In the first animal examined, a small localized cavity in the middle lobe of the right lung marked the site of injection. The connective tissue forming the walls of this little excavation was so thick as to make it resemble a cystic tumor, in the centre of which were a few drops of a turbid fluid. The lung tissue in the immediate vicinity was normal and no enlarged bronchial glands were detected. The other organs were all healthy and the general nutrition excellent. The fluid from the cavity stained and examined under the microscope showed a few bacili, most of them full of spores, and from a portion transferred to blood serum, a pure culture of the tubercle bacillus was readily obtained. In the second rabbit all the organs were perfectly normal, in the third the following lesions were noted. The right pleura, especially on its mediastinal aspect, was studded with small growths, some of them nearly as large as a split pea, of extreme toughness and light yellowish color; on section they were found composed of a fibrous capsule of varying thickness containing material of the consistency and color of dried putty and partly calcareous. Under the microscope a few bacilli were made out in these nodules, and plants from the same source on blood serum resulted in a pure culture of the tubercle bacillus. The lungs were perfectly free from disease, the other organs were sound and the animal was in good condition.

A comparison of the experiments of 1886 and 1887, made under precisely the same conditions,

[1] Read before the American Climatological Association, September 19, 1888.

except that in the latter double the quantity of virus was injected, gives the following results. In 1886, for five rabbits, one death occurred from progressive tuberculosis, and four entirely escaped infection. In 1887, out of six animals, one at the autopsy showed advancing diffuse pulmonary tuberculosis, two failed to become infected, and three (or one-half) presented localized and arrested primary lesions. The beneficial influence produced by a good environment on the course of the tubercular affection, as evinced by the arrested lesions of the last rabbit, seems to have been maintained for four months in spite of their removal to less favorable surroundings.

The dormant virulence of the germs and the dangers which still threatened are shown by the readiness with which these microbes and their spores spang into activity when planted on a suitable culture medium.

From a comparison of the two experiments it would appear that the amount of virus which enters the economy at one time is an important factor in determining infection, and the influence of a favorable environment is emphasized, not only by the entire freedom from disease presented by two of the rabbits, but by a careful study of the arrested lesions of their mates. The lungs of these animals bore testimony to the effectual efforts of nature to localize the mischief and in none of them were secondary lesions present. In two a fibrous sac contained all that remained of the necrotic tissues and the bacilli, and formed an efficient barrier between these still dangerous elements and the healthy parts by which they were surrounded; in the third the injection passing between the upper and middle lobes had evidently entered the pleural cavity alone and acted on a much larger surface; the calcified and fibrous nodules which studded the pleural surfaces marking the numerous foci which had been successfully localized.

The absence of any fresh outbreak of tubercular disease noted at the autopsies of the animals placed for the last four months in less favorable surroundings, is evidence that the conservative reaction of the tissues against the bacilli tended ultimately to bring about complete recovery. The danger of relapse could not, however, be said to have passed, for the encapsulated bacilli grew readily when released and planted on a suitable culture medium.

The autopsy room constantly demonstrates that infection is often arrested when the primary lesions are restricted, while death almost invariably follows when they become more advanced. Vibert recently, while making 131 autopsies at the Paris Morgue on persons who had come to their death by violence while apparently in good health, noted in twenty-five—that is, in more than nineteen per cent., the presence of some slight tubercular lesion. In seventeen of the twenty-five a few calcareous and fibrous nodules remained as the only evidence of an unsuspected and arrested tubercular process, but in none were the pathological changes in the lung extensive. Recovery often follows the operations now undertaken for tubercular peritonitis, though it is evident that all the infectious material cannot be removed. Dogs when injected subcutaneously with a moderate amount of a culture of tubercle bacilli, develop only localized foci, show no deterioration of health, and finally recover completely, but their resistance to the disease can be overcome by the inoculation of larger quantities of the virus. Koch, for a long time, failed to infect rats, but finally succeeded by repeated introduction of more liberal amounts of the culture.

The doctrine of the unity of tubercular virus may be said to derive support from a consideration of the proof offered by both experiments taken collectively, for although the amount of virus injected proved a most important factor in determining infection, whether the animals escaped entirely or died of progressive tuberculosis, whether purely localized disease not incompatible with life or widely differing generalized and progressive pathological processes were induced, seemed to depend not on any variation in the nature of virulence of the virus injected, which was the same in all cases, but in an increased or diminished degree of resistance induced in the tissues through the influence exercised on the vitality of the animal by extremes of environment.

All attempts at the direct destruction of the tubercle bacillus in living beings by germicides have so far proved fruitless, while the records of the autopsies made by Vibert, Councilman, and others, as well as the evidence offered by the present research, furnish proof that the tissues themselves can, under certain conditions, either limit the destructive action of this microbe or even entirely rid themselves of its presence. The best promise of success in the management of tubercular affections for the present, therefore, lies not so much in the search for specific germicidal methods of treatment as in a careful study of all those measures which tend to increase the vital resistance of the infected individual. One of the principal objects of this Association is the study of those conditions of light, air, and habitation best adapted to bring about in the human subject affected with tuberculosis, arrested lesions such as have been described above. That it is possible artificially to produce this result on animals by these simple means alone should be an incentive to a thorough discussion of those climatic and hygienic conditions which go to make up a favorable environment.

THE ABORTIVE TREATMENT OF SYPHILIS.

By J. WILLIAM WHITE, M.D.,
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The essential nature of syphilis has not, as yet, been definitely determined. It seems probable, in the light of modern pathology, that it will be found to depend upon a specific microbe, but that microbe has not yet been isolated or cultivated, or distinctly demonstrated in any way, either clinically, experimentally, or microscopically. The treatment of syphilis cannot, therefore, be based scientifically upon anything but clinical experience. Such experience, however, points so unequivocally to the employment of some form of mercury throughout almost the entire course of the disease, that as regards this main point there are practically no differences of opinion among living syphilographers. Whether we assume that syphilis has to be classed with the exanthemata as a specific eruptive fever, in which case the mercurial may be regarded as a specific antidote to the syphilitic virus; or believe that the phenomena of the disease are due to the entrance into the economy and the multiplication therein of a certain protoplasmic mass—the so-called syphilitic cell—in which case the effects of the drug may be attributed to its action in promoting destructive metamorphosis; or whether, confessing ignorance, we simply appeal to the history of the therapeutics of syphilis and select the drug which we know to have been of the greatest value, we are equally led to employ some form of mercury. There is also but little difference of opinion as to the general method of its employment. Whether given as an antidote, an alterative, a "tonic," or empirically, small doses administered over long periods, with the idea of producing in each case the full physiological effects of the remedy while avoiding its toxic action, represent the views of the vast majority of specialists.

When, however, we approach the subject of the proper period at which to begin its administration we meet at once with a wide divergence of opinion. Mr. Jonathan Hutchinson, unquestionably one of the ablest of living syphilographers, has recently reiterated, under the above attractive caption, the views which he long ago expressed regarding the early administration of mercury in syphilis, claiming that by the prompt employment of the drug in cases of chancre, and its subsequent continuous use, the secondary stage of the disease may be suppressed or rendered "abortive."[1] His general propositions will undoubtedly meet with universal acceptance. When he states that in cases in which the induration of the sore is well characterized and considerable, it always yields quickly and definitely to the influence of mercury; that we never see sores remain typically hard while the patient is under that influence; that in cases in which high temperatures have been observed in syphilis, they always promptly subsided under the use of mercury; and that when the patient receives no treatment until his eruption is well out, mercurial medication will usually, in the most definite manner, cause the eruption to disappear, every one having experience in the treatment of this disease must undoubtedly agree with him. The probable truth of the view which he has always so warmly advocated, that syphilis is due to a specific particulate virus, or, in the language of to-day, to a living microbe, and that, therefore, it is quite within reason to speak of the "specific" or "antidotal" action of mercury, will also be generally, though not universally, admitted. But when we come to consider his advocacy of the administration of mercury, immediately upon the appearance of induration in the chancre, we meet with a serious practical difficulty which, it seems to me, Mr. Hutchinson hardly estimates at its full value. There is a widespread belief among syphilographers, that while there is a strong probability that an indurated sore will prove infecting, and that a soft suppurating sore will not, there are exceptions to both these rules, and that "there is really no absolute proof of the infecting nature of any given sore, but the fact of infection itself." Mr. Hutchinson, it is true, says that ever since the recognition of the facts that some chancres are not infecting, and that the phenomenon of induration is the most valuable one by which to diagnosticate the true chancre, we have been in the habit of waiting until the character of the sore declares itself before beginning to use the specific, and adds, that many, and especially those of the French school, have advocated delay until constitutional symptoms in the form of eruption appear, but with this remark apparently dismisses this aspect of the subject.

I have always regarded his work and teachings with such admiration and respect that I have been led once more to consider the matter carefully, having for years taught and practised on the theory above mentioned, namely, that, all things considered, it was wisest to postpone the use of mercury until there was evidence of constitutional infection. Every surgeon whose work has brought him in contact with large numbers of cases of venereal sores, must recognize the fact rather unaccountably ignored by Mr. Hutchinson, but unquestionably familiar to

[1] The Lancet, January 31, p. 174. Mr. Hutchinson, among other conclusions, stated his belief: "That it is impossible to begin the administration of mercury too soon, and that it should be resorted to without loss of time in all cases in which a chancre shows a tendency to indurate; that many cases of indurated chancre, treated early by mercury, never show any of the characteristic symptoms of the secondary stage.

him, that between the typical soft suppurating local sore and the distinctly indurated chancre there are large numbers of doubtful ulcers which partake of the characteristics of both: local sores with deceptive inflammatory hardening and true chancres with equally deceptive inflammatory softening, suppuration, and even loss of substance.

Nearly every specialist who has written upon the subject has recognized and been influenced by this well-known fact. Mauriac, in his excellent paper on the diagnosis of chancre, after describing the cartilaginous, elastic, sharply circumscribed resistance met with at the base of a true chancre, says that when we find it we may "suspect very strongly that we are dealing with a syphilitic growth, although even those symptoms cannot be considered as infallible." Diday prefers to wait until secondary symptoms make their appearance before instituting mercurial medication, believing, with Zeissel and Sigmund, that the subsequent course of the case is either uninfluenced, or is actually rendered milder by this delay. Bumstead and Taylor assert very positively that no course of mercury administered for a chancre, however thorough, or prolonged, is likely to prevent the subsequent evolutions of general manifestations. Some eminent authorities maintain the contrary, but their opinion has not been confirmed by our own experience. In the very many attempts that we have made to subdue the disease during the existence of the initial lesion, and prior to the appearance of general manifestations, we have always failed. Moreover, although the use of mercury retards the appearance, and probably ameliorates the severity of the secondary symptoms, yet it is a fact attested by many observers, ourselves included, that those cases ultimately do best in which the specific treatment is deferred until the secondary stage. Keyes says "general treatment should be commenced as soon as the diagnosis of syphilis is positive. To be positive on such an important point requires more evidence than is furnished by the simple physical characters of the sore, be they ever so positive. Diagnosis sufficiently accurate to commence treatment upon can only be made by confrontation—establishing the syphilitic disease in the person from whom the chancre was derived—or by waiting until some positive corroborative signs of secondary lesions appear. When the diagnosis is sure, there is no need of further delay."

Van Harlingen, in the *International Cyclopædia of Surgery*, says, "as regards the period at which the administration of mercury should begin, it is now agreed by most syphilographers that nothing is gained by its too early administration. Given on or shortly after the appearance of the initial lesion, its effect is to delay and render irregular the definite generalized lesions, without preventing their eventual appearance. An element of confusion is thus introduced into the orderly evolution of the various manifestations, and occasionally the delay in their appearance gives rise to false hopes of a permanent cure, often rudely dispelled by an unexpected outbreak, or perhaps by the transmission of the disease to an innocent person."

Fournier, perhaps the most eminent living syphilographer, has recorded a case which bears most strongly upon the question under consideration. A female child, six years old, was said to have been infected with syphilis, during an attempt at rape. She had marked vulvitis, and upon the labia three grayish, shallow, indolent, indurated ulcers covered with a diphtheritic-looking membrane, and raised a little above the general surface. In both groins there were enlarged, multiple, lymphatic glands. He positively diagnosticated chancre, but, conforming to his custom in medico-legal cases, declined to testify for a few days. During this time, under a simple dressing, the symptoms disappeared, and the patient, who was carefully observed for several months, never showed any subsequent signs of infection. Fournier believes that the case demonstrates that small inflammatory lesions may so closely resemble chancres as to deceive the most experienced surgeon, and adds that in medico-legal cases the diagnosis should not be made upon the local lesions alone, but should depend upon the development of constitutional symptoms.

It would be easy to multiply evidence to this effect, and I could from my own case-books give many examples of cases in which, if compelled to give an opinion, based upon the appearance at a given time of the local sore, I should have made the diagnosis of syphilis, although delay has, fortunately for the patients, demonstrated the innocent character of their troubles. Mr. Hutchinson, to be sure, says, with characteristic candor, that he must admit that the gross total of cases of primary syphilis which has been under his care has not been so much as that which falls to the share of specialists, particularly those holding hospital appointments, and that more patients come to him in the secondary stages than in the primary. This probably accounts for his somewhat too sweeping recommendation as to the early employment of mercury.

The surgeon who is daily called upon to give an opinion in cases which involve the whole future of the individual, his relations to the other sex, his determination toward celibacy or matrimony, his matrimonial relations if he should be already married, the question of the influence of paternity, the institution of a course of treatment extending over years, the diagnosis of any obscure visceral troubles which he may develop later in life, the profoundly depressing mental effect which a knowledge of syphilitic infection usually has upon intelligent people—the surgeon, I say, who remembers

these facts and recalls the views which I have above cited, as to the possibility of error, should surely hesitate about beginning a course of treatment which will possibly obscure or render altogether impossible the diagnosis.

While I am not disposed in the least to agree with those who believe there is positive advantage in delay as regards the subsequent course of the case, yet I do not think, on the other hand, that the gain from the immediate treatment during the primary sore is sufficient to counterbalance the doubt and uncertainty which that treatment often throws about the future life of the patient. It has been my custom to advise my pupils never to begin constitutional treatment for syphilis, unless they were prepared to swear positively and to demonstrate that that disease existed, and certainly the cases are comparatively rare in which a careful surgeon would be willing to take this position during the existence of the primary sore alone. I have recognized both in my teachings and practice a few necessary exceptions to this rule, which may be included under the following heads:

1. Where confrontation is possible and the sore is distinctly a typical one.

2. Where with a similar sore its continued existence would destroy or imperil the conjugal relations of two people or possibly the happiness of an entire family.

3. Sores with characteristic induration, but with marked tendency to spread and involve important regions.

4. Sores in such conspicuous positions, as upon the lips or the nose, that their continuance would involve a general knowledge of the patient's condition.

With these exceptions I still believe, in spite of Mr. Hutchinson's teachings to the contrary, that it is the part of wisdom to wait until the development of glandular enlargement at some point removed from the initial lesion, and not, therefore, by any possibility a result of simple adenitis, demonstrates the constitutional character of the trouble. It is not necessary to wait for the syphilodermata. Treatment may be safely begun when, after a suspicious sore upon the genitals, consecutive enlargement of the epi-trochlear or post-cervical lymphatics takes place, and, beginning at this stage, I can cordially endorse all that Mr. Hutchinson claims for a mild continuous mercurial treatment as to its effects in suppressing or "aborting" subsequent symptoms. The argument which I have used as against the mercurial treatment of chancre applies with equal force to the local abortive measures which have from time to time been recommended. These include cauterization; excision; antiseptic measures; and various local applications of mercurial preparations by means of ointments, hypodermatic injections, or otherwise. Taking them in the order mentioned, their relative advantages and disadvantages seem to me to be as follows:

As to cauterization, it appears to me unquestionable that it can be of service in but a very small proportion of venereal sores as they usually come under the notice of the practitioner. The publication of certain cases, such as the well-known one of Mr. Hill, who cauterized the torn frænum within twelve hours after the accident, and in whose patient syphilis developed at the usual time, and that of Clerc in proof of the uselessness of immediate ablution, has had a marked effect in influencing professional opinion upon this matter. The teachings of Ricord and Sigmund, who believed that cauterization within five days after contagion certainly prevented infection, have long since been shown to be misleading, as in those days local sores were not clearly differentiated from infecting chancres.

Sores which appear within five days after intercourse are rarely or never syphilitic, and this fact at once throws out 99 per cent. of Ricord's and Sigmund's alleged successful cases. In the remainder, in which cauterization was immediately applied, as in Mr. Hill's case, to a tear or abrasion during coitus with a person known to be syphilitic, there is, of course no certainty that the disease would have developed even if no local treatment had been adopted. The opinions of syphilographers vary greatly in regard to the value of this form of treatment. Keyes peremptorily rejects it as useless and unphilosophical with the remark that no amount of cauterization nor any local treatment can prevent the development of general syphilis after the poison has once been absorbed much less after the chancre has appeared. Hill and Cooper think it wiser to assume that we cannot indicate any period at which syphilis is a local disease which can be extirpated by local treatment. Bumstead and Taylor believe that chancre is never a mere local lesion.

On the other hand, Mr. Hutchinson finds it difficult to believe that absorption of syphilitic virus is so rapid that there is no stage during which it remains limited to the seat of inoculation, and prefers to act as if this stage comprises the first week or ten days after contagion. Jullien remarks that, in spite of theoretical considerations as to the rapidity of absorption of the virus of syphilis, or of other contagious diseases, he still thinks we have no right to neglect whatever small chance may be offered by the employment of cauterization whenever the sore is seen during the first three days. Cornil says that we are not in possession of absolutely conclusive evidence upon this point, but that it is highly probable that the syphilitic virus inserted under the skin remains there a certain length of time without any other action than gradually to change the cells which are in immediate relation with it, and slowly

to prepare them for the hyperplasia which soon constitutes the chancre. Auspitz, Unna, and Kölliker believe that the initial indurated sore is not to be considered as a symptom of general infection. The experience of the latter authors in the excision of chancres has encouraged them to believe that, in a small proportion of cases, general contagion may in this way be prevented.

Familiar with these opposing views, and striving to find a safe general rule for practice and teaching, I have for a long time thought it best to assume that a sore seen within a few days after its appearance, and as yet unaccompanied by any enlargement of the inguinal glands, was still a localized lesion. If favorably situated—*i. e.*, upon the skin of the prepuce or of the genitals—I have advised its removal by excision, and in a large number of cases have practised it, picking up the sore and surrounding tissue with a pair of toothed forceps, and removing it by a single sweep of the knife, or by means of scissors curved on the flat, afterward dressing the wound with iodoform or boracic powder. When the patient refused this treatment, or when the sore was so situated that its removal would cause considerable pain, hemorrhage, or deformity, I have employed destructive cauterization with fuming nitric acid.

As regards protection from subsequent constitutional disease, my results have, on the whole, been unsatisfactory; but in a few cases—five, all told, with two more which are yet doubtful—I have succeeded in making my observations under unusually satisfactory circumstances. In these cases the patients came to me promptly upon the development of the sore, and sent to me, for examination, the women with whom they had had connection; evidence of syphilis being discovered in the latter, I excised the sores of the male patients, and cauterized the resulting wound with nitric acid. In three of these cases, microscopical examination by my friend, Dr. Simes, showed that the sores possessed the usual characteristics of hard chancres. In one of them slight glandular involvement had already shown itself; in the others it had not yet appeared. The shortest period intervening between the appearance of the sore and my inspection of it was twenty-four hours, the longest five days. In two of the five cases, including the one in which there was slight glandular involvement, no further symptoms have ever developed; in the remaining three the appearance of constitutional symptoms was delayed from three to five weeks beyond the usual time, just as is the case from the mercurial treatment of chancre. The other two cases which I have mentioned are now under observation, and I have, within a few hours, had the opportunity of observing another interesting case of tear of the frænum during a suspicious intercourse.

It is only fair to add that, during the time I have been making these observations, I have had several cases in which excision was not performed on account of the anatomical seat of the sore, which I yet believed to be almost certainly specific, but which healed, and disappeared without the development of the slightest constitutional trouble. In these latter cases, however, I had no opportunity for confirming my diagnosis by confrontation. In all cases (and these comprise the majority which come for treatment) in which a week or more has elapsed since the development of the sore, and in which involvement of the dorsal lymphatics of the penis, and the inguinal lymphatic glands is observable, I reject cauterization as a routine method of treatment, on account of its undoubted uselessness at that stage in preventing constitutional disease; the pain which it causes; the inflammatory action which follows it, and which often produces enough œdema and swelling to cause phimosis, and thus convert an open sore into a hidden one; the subsequent effusion of lymph, which simulates true induration and confuses the diagnosis; and, finally, the greater liability to the production of suppurative action in the ordinarily indolent bubo of syphilis.

It seems to me that by this plan of treatment I have given my patients whatever small chance there may be of avoiding constitutional disease, while at the same time exposing them to the minimum degree of local pain and disturbance. The so-called aseptic treatment of the initial lesion of syphilis seems to me a misnomer, so far as the essential character of the sore is concerned, unless it be meant to include only the thorough destructive cauterization of all portions of the infected tissue. Applied simply to superficial dressings placed over the chancre, it can refer only to the prevention of the development of pyogenic organisms upon the surface of the sore. As to the tendency of infecting chancres to suppuration is usually very slight, and their local significance is generally unimportant, we can hardly look here for advantages from the employment of aseptic or antiseptic methods which are at all commensurate with those obtained by the same methods in ordinary surgical conditions.

The method recently recommended by Dr. Edward Bronson, of New York, the local treatment by hypodermatic injection of mercurials beneath the base of the initial lesion and into the mass of the indurated lymphatic glands, is based almost exclusively on theoretical grounds. It appears to rest upon the view that mercury acts as an antidote when brought directly into contact with the syphilitic germs, and that this influence would probably be especially active if the drug were brought to bear directly upon the local lesions which are the foci of infection during primary syphilis. If we believe that the virus remains localized for a time after inoculation, and is not disseminated through the general system, and that mercury acts by its germicidal

influence, this treatment is not unphilosophical, but seems manifestly inferior to the more thorough plan of excising both the chancre and the enlarged lymphatics of the groin. The latter procedure would be less likely to result in local troubles, such as abscess or cellulitis, and would certainly be more effective.

My views upon the general subject of the abortive treatment of syphilis may accordingly be expressed as follows:

I. While it is unquestionably desirable to begin mercurial treatment at the earliest proper moment, and while that treatment undoubtedly either suppresses or renders milder the subsequent secondary manifestations, and while there is every reason to believe that in this way the liability to later or tertiary lesions is somewhat lessened, nevertheless the sum total of these advantages does not warrant the employment of mercury one moment before the diagnosis of constitutional disease is absolutely assured.

II. While in many cases that diagnosis can be made with a high degree of probability from the appearance of the primary sore alone, yet it cannot be said that all possibility of error is excluded until some general symptom, such as the enlargement of distant lymphatic glands, has shown itself.

III. The administration of mercury during the existence of the primary sore, unaccompanied by general symptoms, for the purpose of suppressing or "aborting" syphilis, is not, therefore, justifiable, unless by confrontation the diagnosis can be confirmed, or unless there are urgent and unquestionable reasons for securing rapid cicatrization of the chancre.

IV. It is proper to employ cauterization or excision according to the site of the chancre, in cases in which it is seen very soon after its appearance, and especially when it is known to have followed intercourse with a syphilitic person. The chances of preventing constitutional infection in this way, while very slight, may yet be considered sufficient in such cases to counterbalance the disadvantages of the method, such as pain, swelling, the production of phimosis or of suppurating bubo, and the obscuring of the diagnosis by the resulting inflammatory exudation.

V. Aseptic or antiseptic measures, while harmless, cannot be considered especially indicated in the local treatment of chancre, and can, in all probability, have no true abortive influence.

VI. The local use of mercurials, hypodermatically or by inunctions, is perhaps worth a trial, but it is probably inferior to the more radical methods, based essentially upon the same principles, namely, excision and cauterization.

1810 SOUTH RITTENHOUSE SQUARE.

MEDICAL PROGRESS.

The Prevention of Puerperal Fever.—DR. C. J. CULLINGWORTH, in his introductory address at St. Thomas's Hospital, at the opening of the session, showed by statistics that, by the use of antiseptic measures puerperal fever has been almost entirely banished, and it has come to be regarded as quite an unusual event for a patient's temperature during convalescence to exceed 100° F.

In the face of such results as these, it is surely time to give up talking about an autogenetic variety of puerperal fever. The precise character of the antiseptic measures to which these wonderful results are due, varied in different hospitals, and varied, too, in the same hospital from year to year. It would, therefore, serve no good purpose to attempt to describe them in detail. The object at which they all aimed was the same, namely, the exclusion of pathogenic microörganisms from the genital passages. As to the best methods of effecting this object, there is, no doubt, still some difference of opinion. The best authorities, however, are quite agreed:

1. That the fundamental rule in antiseptic midwifery, the neglect of which renders all other measures futile, is to insure perfect antiseptic cleanliness of the hands of the attendants, of any instruments or appliances that may be required, and of everything that is liable to be brought into contact with the genital passages.

2. That the most efficient antiseptic for this purpose at present known is corrosive sublimate.

3. That the best method of insuring antiseptic cleanliness of the hands is to wash them thoroughly with soap and warm water, using a nail-brush vigorously, and then to rinse them carefully, again with the help of a nail-brush, in a solution of corrosive sublimate, 1 in 1000.

4. That if the patient has been already examined without antiseptic precautions, the vagina ought to be irrigated with a germicide solution as a preliminary proceeding.

5. That if, for the foregoing or any other reason, sublimate irrigation be employed, care should be taken to avoid any of the solution lodging in the passages, lest the patient be mercurialized.

With regard to the desirability of sublimate irrigation as a routing practice before and after delivery, opinions vary. It cannot be denied that some of the most brilliant results hitherto obtained have been obtained by those who regularly practise sublimate irrigation. On the other hand, however, there is the experience of the hospitals of New York and Boston, where the crowning success was achieved after irrigation, as a routine practice, had been entirely abandoned. Moreover, it must not be forgotten that several cases have been recorded in which sublimate irrigation has resulted in fatal mercurial poisoning. For the ordinary douching of the vagina during the puerperal period, the simpler and non-poisonous antiseptic solutions are, in Dr. Cullingworth's opinion, quite as efficacious as the more powerful ones, and infinitely less dangerous; but as a disinfectant for the hands, instruments, and other appliances, corrosive sublimate is perfectly free from danger, and at present stands unrivalled.

The essential antiseptic measures are very simple, and their habitual employment is by no means burdensome. A pint of corrosive sublimate solution of the proper

strength (1 in 1000) can be prepared in a minute or two from a ten-grain powder, a dozen of which can be put in a little box, and carried in the pocket. In the powders supplied by his direction to the obstetric clerks in connection with the maternity department at St. Thomas's, the ten grains of corrosive sublimate are mixed with fifty grains of tartaric acid and a grain of cochineal. The tartaric acid increases the bulk of the powder and, what is more important, lessens the risk of a portion of the mercury being lost by precipitation, either from being formed into an insoluble albuminate, or from the alkalinity of the water, as in the case of London. The cochineal is, of course, merely a coloring agent to prevent the solution being mistaken for anything else.

A solution of corrosive sublimate does not, like solutions of potassium permanganate, lose its antiseptic property after being once used. It is, therefore, usually sufficient to prepare a supply on entering the lying-in room, to renew it when the labor is over, and afterward to prepare a fresh solution once a day. The solution should be placed in a small bowl on the washstand by the side of the washstand basin, and kept there, ready for immediate use, from the time the first internal examination is made to the end of the puerperal week.

The best antiseptic lubricant with which we are at present acquainted is a solution of corrosive sublimate in glycerin, 1 part to 1000, and this also can be easily carried about in a suitable and well-secured bottle.—*British Medical Journal*, October 6, 1888.

The Treatment of Phthisis with Calomel.—Dochmann, in the September *Therapeutische Monatshefte*, relates his experience with the use of calomel in phthisis. Administered in the first and at the beginning of the second stage, calomel improves the appetite, diminishes the cough and fever, and dispels the night sweats and the objective symptoms. At the end of the second and at the beginning of the third stage, it reduces the fever, checks or diminishes the diarrhœa, and improves the general condition. Whether calomel has a specific action upon the local changes in the lungs or influences the life and development of the tubercle bacilli or checks the progress of the destructive process, only more extensive observations can determine, The following formulæ may be used:

℞.—Hydrarg. chlorid. mitis . . grs. x.
Pepsini . . . . . 3j.
Tinct. opii . . . . . gtt. xxx.—M.
Ft. pulv.
Dein adde
Ext. phellandrii aquatic., q. s. ut ft. pil. No. 60.

℞.—Hydrarg. chlorid. mitis . . grs. x.
Pepsini . . . . . 3j.
Ergotine (Bonjean's) . . grs. ij.
Ext. glycyrrhizæ q. s. ut ft. pil. No. 60.

For hemoptysis:

℞.—Hydrarg. chlorid. mitis . . grs. x.
Pepsini . . . . . 3j.
Ext. hyoscyami . . . grs. ix.
Ext. phellandrii aquatic., q. s. ut ft. pil. No. 60.

On the first day the patient takes six pills (two at intervals of two hours), on the second day five, on the third day four, and from the fourth day he takes two pills, thrice daily, throughout the period of treatment. Every fifth or sixth day, the calomel is intermitted for two or three days, during which time iodide of potassium may be given. The size of the first dose depends upon the fever; should the fever increase, the dose of calomel is increased to twelve to fourteen pills a day.—*Wiener medizin. Presse*, No. 39, 1888.

Creasote in Phthisis.—Keferstein recommends the following formula:

℞.—Creasot. . . . . 1.3 parts.
Spirits of wine . . . 25 "
Cinnamon water . . 100 "
Syrup of cinnamon . . 25 " —M.

One commences by administering three teaspoonfuls during the day. Each week the dose is increased one teaspoonful.—*Gazette Médical de Paris.*

Use of Antipyrine in the Nasal Passages.—Dr. F. Whitehill Hinkel reports (*New York Medical Journal*, Oct. 20, 1888) four cases treated by antipyrine spray and summarizes his experience as follows:

1. A solution of antipyrine possesses hæmostatic properties when sprayed into the nose, though not superior to cocaine.

2. Antipyrine in about four per cent. solution may be used upon the nasal mucous membrane with temporary relief to occlusion from engorgement of the turbinates, and with sedative effects upon irritable states.

3. It is most effective where the element of irritation exceeds that of inflammation.

4. It presents an advantage over cocaine in not producing local numbness and dryness, and in the absence of the general stimulating properties of cocaine, causing sleeplessness, headache, etc. In cases such as hay fever, in which an agent of relief is used for long periods, antipyrine as a nasal spray is less likely than cocaine to produce constitutional disturbance or to lead to a "habit."

5. Antipyrine presents the disadvantage of causing more or less severe smarting, and being unequal to the relief of severe inflammation or severe occlusion of the nares.

6. Its antiseptic and stimulant properties will probably make it serviceable as an application to fresh wounds and to granulations and ulcerations in the nasal chambers.

7. Combined with cocaine, it increases the local action of the latter, enabling it to be used in weaker solution.

Ether for Pediculi Pubis.—In the *Monatshefte für praktische Dermatologie* it is proposed to destroy pediculi pubis by a single application of ether in spray. This procedure is less injurious to the skin than the application of chloroform, which likewise accomplishes the same object.—*Deutsche medicin. Wochenschr.*, September 20, 1888.

Calomel and Digitalis in Cirrhosis of the Liver with Ascites.—While calomel is used with general success as a diuretic in cardiac and renal diseases, opinions are divided as to its employment in cirrhosis of the liver. Upon the suggestion of Senator, Dr. Schwass (*Berlin. klin. Wochenschr.*, No. 38) has used calomel and digitalis for ascites following hepatic cirrhosis, with extraordinarily fortunate results. In the case of a forty-five year

old man, who had been in the hospital ten months, requiring puncture at least twice monthly to evacuate the fluid which collected in the peritoneal and right pleural cavities, the ascites disappeared upon energetic treatment with calomel in conjunction with repeated punctio abdominis, and the patient in a few weeks recovered to such a degree as to be able to leave the hospital. Temporary benefit was attained in the grave complications of cirrhosis with organic heart disease, nephritis, and tubercular peritonitis. The combination of calomel and digitalis possesses greater advantages. It often acts beneficially when one or the other alone fails. A further advantage is, that with the simultaneous administration of digitalis calomel is borne better and for a longer period—that is, its unpleasant secondary effects, ptyalism, stomatitis, and gastro-intestinal catarrh, either do not appear at all or appear only in a mild degree, or at a later stage than common. A grain and a half of calomel and three-quarters of a grain of digitalis are given every three hours for a week. It is an advantage if the cases are treated early. In advanced stages of the cirrhotic process permanent benefit can scarcely be expected. Based upon numerous observations Schwass makes the recommendation, in suitable cases of ascites from hepatic cirrhosis—that is, when no complication with grave disorder of some other organ exists, excepting affections of the heart, and when the disease has not yet entered upon the last stage, that an attempt be made with calomel and digitalis to prolong life, perhaps with a restoration to activity.—*Wiener medizin. Presse*, No. 40, 1888.

Ergotine in Enlarged Spleen.—Fania reports the case of a patient suffering from a greatly enlarged spleen, due to malaria, in which that organ resumed its normal size after the hypodermatic injection of ergotine.—*L'Union Médicale.*

Parotiditis.—

R.—Phenic acid	. . . . .	gr. viij.
Quininæ sulph.	. . . .	℥ss.
Acidi salicylici	. . . .	℥ss.
Rum	. . . . .	℥iv.—M.

One-eighth of this to be taken every hour or two in the very severe forms of parotiditis.

Tar-water for Hemorrhage.—Dr. Corneille de Saint Marc has found tar-water as useful in hemorrhage as hamamelis and other hemostatics. It is best given in quantities of an ounce to an ounce and a half in twenty-four hours, in hemorrhages from the lungs, nose, or uterus. The remedy is even said to be useful in advanced phthisis with severe hemoptysis.—*Deutsche medicin. Wochenschr.*, September 20, 1888.

The Preparations of Sozoiodol.—Dr. Langgaard (*Therap. Monatshefte*) reports the result of his experience with the preparations of sozoiodol. He used the soluble sodium salt and the free diiodo-paraphenol-sulphonic acid, for which he proposes the name sozoiodolic acid. It was shown that the acid or the sodium combination, in solutions of one-half to one per cent., retards the development of the micrococcus of suppuration. Two per cent. solutions entirely check the development. Experiments upon rabbits demonstrated that fifteen grains of sozoiodol-sodium have no toxic effect. In the antiseptic treatment of wounds, besides the free acid, the sodium, potassium, and aluminium combinations were principally used, which, on account of their non-toxic quality and absolute tastelessness, may be preferred to other antiseptics in common use. Of the sodium and aluminium combinations, which are readily soluble, or of the free acid two to three per cent. solutions in water may be employed. The same means may also be adapted to the impregnation of dressings, such as gauze and cotton. When a slow, prolonged action is desired, the sozoiodol-potassium commends itself for its slight solubility, sprinkled in a finely powdered state, either alone or with talc or sugar of milk, five to ten per cent. ointments of sozoiodol-sodium, potassium, aluminium, or zinc with lanolin; for insufflation, sozoiodol-potassium and sodium, alone or with sugar of milk, sozoiodol-zinc, ten per cent. with sugar of milk, sozoiodol-mercury, four to ten per cent.—*Wiener medizin. Wochenschr.*, No. 40, 1888.

Pleural Surgery.—T. Pridgin Teale expresses himself in the following remarks regarding operations which involve the pleura. He thinks "we are losing our fear of exposing the pleura and the lung, just as we have learnt, step by step, how to deal boldly and safely with the peritoneum.

"The evil of admission of air into the pleural cavity is not the mere exposure of the pleural surface to the air, is not that the lung collapses by the mere admission of the air, but that where there is a fairly healthy lung and pleura, the inrush of air reduces to a serious extent the mechanical power of the thoracic wall over the function of inspiration.

"That in cases in which this mechanical difficulty threatens the life or impedes the recovery of the patient, surgery must decide upon the best method of closing the wound to the inrush of air whilst allowing adequate drainage of any pus cavity to be carried on.

"That the region of the diaphragm is a situation in which abscess amenable to surgical treatment frequently occurs, such abscesses often commencing below the diaphragm, and tending to discharge through the diaphragm and through the lung.

"It seems probable that such abscesses can be more safely attacked through the lower angle of the thorax, provided there be dulness at the seat of puncture, than through the abdominal wall.

"As to washing out the cavity of a large pleural, or pulmonary, or hepatic abscess, it is probable that antiseptic washing is of value in the early period, whilst the cavity is offensive; but that, as soon as the secretion has become sweet, washing is not only unnecessary, but tends to disturb the comfort of the patient, and retard his progress. If drainage be effective, so that fluid does not lodge, the fluid, which is sweet when secreted, should escape from the cavity before it has time to deteriorate.

"As to the question of excision of portions of rib in treating empyema, on this point he is unable to speak from personal experience. The tendency of surgical opinion seems to be rather to reserve it for special and exceptional cases than to make it a general rule of practice."—*British Medical Journal*, Oct. 13, 1888.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 27, 1888.

HÆMOGLOBINURIA.

NOTWITHSTANDING the enormous amount of clinical and pathological work which has been expended during the last ten years on the subject of paroxysmal hæmoglobinuria, and on the hæmoglobinæmia of which it is a symptom, we are yet ignorant of its essential cause. The action of cold, or of prolonged muscular effort, as exciting causes is, it is true, well understood; but why a small proportion of individuals should be subject to transient alterations in the blood so profound, from the action of insignificant causes, "chasing the royal blood, with fury, from his native residence," remains to this time wholly unexplained. Nor do we, in point of fact, possess any reasonable hypothesis concerning the causation of this condition, for the analogy of the hæmoglobinuria following the administration of certain drugs and the transfusion of blood, helps us not at all to the discovery of the essential nature of the *materies morbi* of the paroxysmal form.

Still further work must be done ere our knowledge of hæmoglobinuria shall have become complete. The direction of that work appears to lie in a closer, more exact, and more minute investigation of individual cases. An excellent example of such work is to be found in a recent valuable paper by PRIOR, of Bonn (*Munch. med. Woch.*, July 24 and 31 and August 7, 1888). The subject of the investigations upon which Prior's paper is based was a man forty-three years of age, without history of syphilis, but who, while under observation, developed pulmonary tuberculosis, of which he finally died. Twelve seizures were duly studied. Of these, eight began with a distinct chill, one with well-marked fever, three without decided prodromes. The exciting cause on five occasions was exposure to cold; on three, unusual bodily exertion; once, exertion and wetting; on three occasions there was no discoverable cause. Ten of the attacks were accompanied by fever, the rise of temperature reaching in the course of an hour 102° to 104° F. The duration of the febrile movement varied from one and a half to eight hours, the average being five hours. In two instances the hæmoglobinuria was unattended by rise in temperature. The reaction of the urine in all the attacks was acid. In this respect the case differs from instances recorded by Rosenbach and Fleischer, who noted neutral and alkaline reactions. In eight of the twelve paroxysms the coloring matter of the blood appeared as methæmoglobin, twice as a mixture of methæmoglobin and oxyhæmoglobin, and twice as oxyhæmoglobin alone. The hæmoglobin, as a rule, made its appearance in the urine about the time the temperature reached its maximum, the amount being greatest when the fever was most intense, or in the beginning of the crisis. The more intense the chill and the higher and more prolonged the fever, the more abundant and long continued the excretion of hæmoglobin. The average specific gravity of the urine was about 1017, ranging from 1012 to 1021: its amount was somewhat diminished on the day of the attack, and increased on the following day.

During the paroxysms the urea and other solid constituents of the urine were also diminished, being again increased somewhat upon the following day. The form of albumen present in the attack was chiefly serum-albumen; to a much smaller extent paraglobulin. The proportion of albumen was determined at that period when, upon spectroscopic examination, the hæmoglobin was found to have disappeared; it was never great, not exceeding 0.3 per cent. In about half the attacks the spleen and liver were tender upon pressure and appreciably enlarged, in some instances being recognizable upon palpation. In one attack only was the spleen alone enlarged; this enlargement of these organs persisted some little time after the subsidence of the attack. In rudimentary paroxysms, in which there was hæmoglobinæmia, as determined by the presence in the blood of phantom corpuscles and corpuscular débris, without the presence of hæmoglobin or albu-

men in the urine, there was a likewise demonstrable enlargement of the liver and spleen. In two paroxysms there was icterus. During the paroxysms the heart's action was frequent, 140–150; pulse small; respiration disturbed, dyspnœa occurring even in those attacks unattended by elevation of temperature. Among the nervous disturbances were dulness, creeping sensations of the surface, contracted pupils, unsteadiness in movement. Upon the occurrence of the sweating stage the pupils dilated. Headache and vomiting are also to be regarded as indications of disturbances of the general nervous system.

There can be little doubt that in paroxysmal hæmoglobinuria brought about by the action of cold or prolonged muscular effort, the symptoms are caused by some autogenous chemical substance, rapidly developed and acting as a poison; the action of this substance upon the blood is analogous to that of chlorate of potash, carbolic acid, or foreign blood introduced by transfusion. It not alone deprives the red corpuscles of their coloring matter as does glycerine, but it also destroys them. This substance and the hæmoglobin dissolved in the blood serum are in part disposed of in the liver and spleen, in part eliminated by the kidneys. What it is, remains to be determined.

THE SUPPRESSION OF SMALLPOX.

According to the official records, smallpox has entirely disappeared from Philadelphia after having prevailed to a moderate extent for about six months. During this period there were 364 cases and 80 deaths, which makes the death-rate 21.97 per cent.

Immunity from this disease for a length of time, by removing the incentive of fear, has the effect of diminishing the number of vaccinations and of correspondingly increasing the number of susceptible subjects. Under these conditions, the introduction of a case, especially if it is not at once placed under proper restrictions, is very apt to spread the disease.

Variola was brought to Philadelphia by a workingman from Sheffield, England, in February last. The case was a light one, and its nature was not suspected until three children of the household were taken sick. By the unfortunate neglect of the physician in attendance, the disease was allowed to become distributed before the authorities were apprised of its existence. Had a notification of the first case been promptly made, the spread of the disease would, in all probability, have been prevented. The rigorous application of preventive measures uninterruptedly continued after the existence of the disease was discovered, had the effect of confining it within moderate limits, and of finally suppressing it. These measures consisted in vaccination, isolation, and disinfection. Twenty public vaccinators successfully vaccinated 25,000 persons in six months. In addition, many times this number of persons were vaccinated at private expense. At least fifty-five per cent. of the cases were isolated in a special hospital, and the remainder in their homes with the consent of a medical officer of health, and under his supervision. Disinfection was conducted under the direction of a trained official, aided by his subordinates. The immediate notification of cases, so important in the official management of contagious diseases, was secured by a stringent law, assisted by the pressure of public opinion.

The banishment of smallpox is theoretically practicable, but practical experience teaches us that its restriction is all that can be expected, even under the most perfect management. The prevention of no disease is better understood than that of smallpox, and yet the consummation of measures aimed at this object is constantly hindered by agencies over which there can be no absolute control. To stamp out the disease, early or late, requires the complete application, in all its details, of a perfect method, which, however well understood and scrupulously attempted, is hardly ever successfully accomplished. Hence it is that only approximate results are obtained, even under the best management, the success of these results, as in all undertakings, being commensurate with the correctness of the methods pursued and the timeliness and thoroughness of their application.

WOUND TREATMENT WITHOUT DRAINAGE.

Ever in modern times has it been the ideal of the surgeon to have wounds heal without subsequent disturbance or attention after the post-operation dressing has been applied. Manifestly this will never be possible for all wounds, but every day we see the range of this much to be desired innovation widen, and at no distant time we may confidently expect to heal a majority of our operative and traumatic wounds by primary intention, without either drainage or redressing. The present necessity for drainage is the greatest shortcoming of our ideal, but much valuable work is being prosecuted in that direction, and the near future may be expected to clear up

that which at present is probably misunderstood or falsely interpreted.

Perhaps chief amongst the recent workers in the direction of healing large wounds without drainage is Rydygier, who has been carrying on experiments upon quite an extensive scale (*Wiener med. Wochenschrift*, No. 18, 1888). He, of course, has only attempted thus to treat wounds which seemed favorable to his purpose, but it will be seen that this includes cases which might appear exceedingly unfit for healing without drainage. He concludes that such attempts should be strictly confined to wounds which we feel confident are entirely freed from all diseased tissues; that the most complete disinfection of the wound area must be practised before operation; that antiseptic irrigation must not be employed after beginning the operation; that all unnecessary sponging and other manipulation of the wound must be strenuously avoided, and that primary suture be employed, leaving small interstices here and there between the stitches which are to be allowed to fill with clot, and dry as rapidly as possible. Hence no protective is to be used, except in those cases in which the wound edges cannot be made nearly to approximate. Dryness, flat compression, and antiseptic protection are the features of the dressing and after-treatment. Drain tubes are directed to be introduced later, if the case should progress unfavorably; but, in Rydygier's hands, this was necessary in only about sixteen per cent.

He has been able to put this method of wound handling into successful use even in cases of hip-joint disease—surely a crucial test. The use of antiseptic — hence irritating — solutions upon the wound has been abolished, and, consequently, the main necessity for drainage (to carry off the immense ooze which is thereby produced) is done away with at once. Four cases of excision of large lymphomata of the neck have thus been dealt with, and thorough primary union secured, as likewise have breasts been excised, the scapula resected, tuberculous bones chiselled out, etc., with, in all, but sixteen per cent. of failures. The non-successes, however, were only partial, and in no wise affected the patient for the worse. The method has been found of especial value in cases of surgical tuberculosis, in which, heretofore, long healing drainage sinuses have been a serious drawback or cause of relapse.

The Fifth Otological Congress will be held in 1892, at Florence.

Bellevue Hospital, New York, has hitherto had no place of worship for its convalescent inmates other than the amphitheatre used by the students on week days. The corner-stone of the new Townsend Chapel was laid last week by Bishop Potter. The building will cost $25,000, and will embrace a free reading-room and library for the use of the patients and nurses.

Dr. O. W. Wight, of Detroit, died October 12th, from typhoid fever. Dr. Wight was widely known through his vigorous administration of the health offices of Milwaukee and Detroit, and through his sanitary and medico-legal writings. He had been admitted to the bar previous to his entering upon the practice of medicine; to a mind widely versed in knowledge, he added acute powers of observation and an originality in the application of his learning.

Lloyd Morton, M.D., of Pawtucket, R. I., died on the 16th inst., in the sixty-first year of his age. He died suddenly, of apoplexy, by which he was prostrated while in attendance upon a patient, to whose house he was called at 3 o'clock A.M.

Dr. Morton, the son of a physician, was born in Halifax, Mass. He was graduated from Brown University in 1844, and from the Woodstock (Vt.) Medical College in 1851. He had resided and practised medicine in Pawtucket since 1852. A widow and one son survive him.

The deceased was a prominent and respected citizen, and stood high in his profession. He joined the Rhode Island Medical Society in 1864, was elected president of the same in 1872 and again in 1873. Subsequently, he was a member of its Board of Censors from 1878 to 1883 inclusive. He was a man of pronounced opinions, and at the same time of kind and generous impulses. As a physician and surgeon he was experienced and successful.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 18, 1888.

The President, A. Jacobi, M.D., in the Chair.

Dr. M. Allen Starr read a paper on

APRAXIA AND APHASIA; THEIR VARIETIES AND THE MODE OF DETECTION OF EACH.

His object in the paper, he said, was not so much to present a review of our present knowledge regarding these affections, as to indicate the methods of examination to detect *all* the symptoms present in patients suffer-

ing from them. The division of disturbances of speech into the two great classes of sensory and motor aphasia, had been followed by a further subdivision into word-deafness, word-blindness, agraphia and motor aphasia, and paraphasia.

The accepted notion of to-day is, that every word in ordinary use has a complex mental substratum, which may be termed the word-image, made up of a number of memory-pictures. Each object would be found to vary from another in respect of the memory-pictures which form its mental substratum. It is a fundamental position that involved, in the accepted theory of cerebral localization, that memories are the residue of perceptions, and are, therefore, localizable in the regions of the brain concerned in perception. It followed that these memories forming the idea of an object or an action, being distinct from one another, might be lost by disease of the brain having a limited extent, and that the character of the memories lost would depend on the location of the disease.

For the general symptom of inability to recognize the use or import of an object, the term *apraxia* is now employed; and since apraxia is a symptom which is very frequently associated with aphasia, and which, in fact, may lie at the basis of aphasia, it should always be looked for in a patient. To test for apraxia it is only necessary to present various objects to a person in various ways, and notice whether he gives evidence of recognition. He may or may not be able to name these objects; the question in point is, Is it evident that the object awakens an idea in his mind?

Having stated that the variety of apraxia known as blindness of mind is the one most commonly met with, Dr. Starr related the case of it recently reported by Macewen, which was of especial interest as affording the first example of its successful treatment by operation. (*British Medical Journal*, August 11, 1888.) The angular gyrus was exposed by surgical procedure, and it was proved that a portion of the internal table of the skull had been detached from the outer, and had exercised pressure on the posterior portion of the supra-marginal convolution, while a corner of it had penetrated and lay imbedded in the anterior portion of the angular gyrus. Removal of the bone, the displacement of which was the result of an accident a year previously, resulted in complete recovery from the pain and mental symptoms from which the patient suffered.

The variety of apraxia known as deafness of mind had recently been studied by Oppenheim and others, who noticed that while some aphasics retained their musical faculties, others lost the power to follow melodies, to appreciate music, or to hum or sing the tunes which they formerly knew. In view of the observations that had been made regarding this point, it was worth while to test intelligent patients as to their musical faculties. Apraxia had as many varieties as there were organs of sensation, and the facts which had been collected in regard to the different forms were of great interest, not only as throwing light on mental processes of association, but as indicating that those processes were carried on in definite areas of the brain and in tracts which connect those areas, and could be arrested by disease in these parts. One fact of special interest had been brought out by Dr. Starr's study of the cases of apraxia which he had been able to collect, and that was, that the lesion has always been found in the left hemisphere in right-handed, and in the right hemisphere in left-handed, persons; in other words, in the same hemisphere lesion of which has produced aphasia. It was true that apraxia, like aphasia, had been noticed in cases of paretic dementia, in which the disease is diffuse and situated on both sides; but this fact would not imply that a unilateral lesion alone was insufficient to produce the symptom.

In nine cases of apraxia with autopsy collected by Dr. Starr, the variety which existed was that of psychical blindness, and accompanied the form of aphasia known as word-blindness. In all the cases the lesion involved the cortex of the supra-marginal and angular gyri, or the tracts posterior to those parts in the white matter beneath them. It was noticeable that this symptom of apraxia was always associated with some form of aphasia. Hence all cases of aphasia should be examined for apraxia. From the lesions observed, it would seem that at present we must locate our memory-pictures of objects on one side of the brain, and on the same side which presides over speech.

Dr. Starr then directed attention to the second set of memory-pictures which make up the word image. Each word, he said, was composed, as far as its own image went, of four separate memories, each of which might be lost separately.

1. If the memory of the sound of the word is lost, the memory cannot be called to mind, and cannot be recognized when heard.

2. If the memory of the appearance of the word is lost, the visual image of it cannot be called to mind or recognized, and the patient will be unable to read or to write spontaneously.

3. If the memory of the effort needed to pronounce a word is lost, a true paralysis of articulation occurs, though the muscles may not be weakened. This is the ordinary form of motor aphasia, due to a lesion of Broca's centre.

4. The independence of the effort-memory necessary for writing and connected with movements of the hand from the effort-memories of speech has been established. When these were lost alone the condition was known as agraphia. In such a state the pen could not be used. When a word could not be called to mind, it could not, of course, be written; but words could often then be written by dictation, if the person was one who was accustomed to writing much. Hence sensory agraphia and motor agraphia must be distinguished; the former being a part of word-blindness, the latter not at all associated with inability to read.

These forms of aphasia are due to a loss of distinct memory-pictures. These several memory-pictures which are united in the word-image might thus be reasonably regarded as separate from one another in their location in the brain. But since they *are* joined to form the word-image, it follows that the association-fibres joining the various areas are as necessary to the use of even a single word as the various areas with their memories. It is really by association only that an object or a word becomes a subject of thought or use. There is one form of aphasia in which the lesion is known to affect a great association-tract, viz., paraphasia, or the aphasia of conduction of Wernicke. In this condition the word-hearing and word-uttering process are perfect, but their connection is broken. The patient can understand what is said to him, and can pronounce many words well; but

he misplaces words, using one word for another. Such patients may even talk jargon. It is, therefore, evident that the processes of association should be most carefully tested.

In many cases of aphasia the symptoms are not such as to point to one of these pure forms of aphasia, but a combination of the characteristics of these forms will be found. The patient then had a mixed form of aphasia, in which both sensory and motor elements were combined. Still, in such cases, a thorough examination would demonstrate that one or the other pure form was present in excess, and this would indicate in which direction the lesion lay. The facts that all the various speech areas are supplied with blood by the middle central artery, and the frequency with which emboli lodge in this artery instead of plugging up a small branch of it, explain the frequency of mixed aphasia, and the rarity of pure forms—which are due to small areas of softening.

To examine an aphasic thoroughly, Dr. Starr said it was necessary to test:

(1) The power to recall the spoken or written name of objects seen, heard, handled, tasted, or smelt.

(2) The power to understand speech and musical tunes.

(3) The power to understand printed or written words.

(4) The power to speak voluntarily. Does he talk clearly? Does he mispronounce words? Does he misplace words? Does he talk jargon?

(5) The power to repeat a word after another.

(6) The power to read aloud. Does he understand what he reads?

(7) The power to write voluntarily. Can he read what he has written?

(8) The power to write at dictation.

(9) The power to copy.

(10) The power to recognize the use of objects seen, heard, felt, tasted, or smelt.

In conclusion, Dr. Starr read the detailed histories of two cases illustrating some of the varieties of aphasia described, and presenting points of special interest.

Dr. W. R. Birdsall said that this was unquestionably one of the most fascinating of all the separate studies of the nervous system. In the first case in which he had ever made out the diagnosis of aphasia independently, the patient was an ignorant fellow, who was accustomed to play the violin at dances. He was almost totally aphasic and agraphic, except that he could write "yes" and "no," and sign his own name. There was, however, no word-deafness or word-blindness; and the musical sense was not impaired to the slightest degree.

Dr. E. D. Fisher said that he saw one of the cases mentioned in the paper in connection with Dr. Starr, and he recalled very well the great difficulty that was experienced in getting at some of the points desired, especially in determining the presence or absence of hemianopsia. It seemed to him that in some cases there might be something more besides aphasia or apraxia. There was probably a general loss of intelligence represented by a cortical lesion not localized. Rather than a localized lesion, there was some interference with the whole sensorium. Another interesting point that suggested itself was whether the lesion might not sometimes be only in the association fibres, and at a considerable distance from the cortical centres. These fibres are the easiest means of transit, and it seemed to him that the question, whether the lesion was cortical or subcortical in any particular case, could only be determined by a post-mortem examination.

The President said that it appeared to him that the difficulties which Dr. Fisher had mentioned really did exist. Hence it is that some physiologists, like Goltz, are inclined to doubt the correctness of the cerebral localization now in vogue.

Dr. Starr said that all the diagrams, except his own, designed to illustrate aphasia (by Broadbent, Wernicke, Charcot, and others) had on them an intellectual centre, with which all the memory-centres are connected by converging lines. He did not believe, however, that there was any such thing as an intellectual centre independent of these other centres; nor did he think that there was any need of an intellectual centre. If intellectual centres did exist, they must, unquestionably, in accordance with the phenomena that had been observed, be situated in the same location as the memory centres. In regard to the point raised by Dr. Jacobi, he thought that physiologists are less liable to arrive at correct conclusions concerning cerebral localization than pathologists.

Section on Theory and Practice of Medicine.

R. C. M. Page, M.D., Chairman.

Stated Meeting, October 10, 1888.

Dr. Landon Carter Gray read a paper on

Neurasthenia; its Differentiation and Treatment.

He first directed attention to the fact that functional nervous diseases are largely disregarded by the general practitioner because of the modern development of the study of them, although the need of their proper classification is widely felt, especially by neurological specialists. For this reason it was that the writings of the late Dr. George M. Beard had had such a success in Germany. Dr. Gray did not believe that true neurasthenia is as prevalent as the followers of Beard would have us believe. He stated that in his opinion there are three forms of neurasthenia, the reflex, the lithæmic, and the simple. The reflex form is due to vicious habits and reflexes from non-nervous organs; the lithæmic is due to so-called lithæmia; and the simple form is that in which there is true nervous prostration. The points of differential diagnosis of these various forms were then dwelt upon. But neurasthenia is also to be differentiated from a number of nervous diseases—especially the early stages of the latter—such as the morbid fears (for which Dr. Gray suggested the name of functional insanity), and which really belong to the insane diseases; melancholia, especially the mild cases, in which suicide is often committed; the early stages of mild chronic forms of insanity; neurotic conditions in which the individual is subject to migraine, hysteria, angina pectoris, or anginoid attacks; the early stages of general paresis of the insane or of locomotor ataxia; and a peculiar affection described a year ago by Dr. Hughes Bennett and called by him muscular hypertonicity, in which the symptoms are those of weakness and exaggerated reflexes of the lower extremities.

The prognosis of these different forms is variable, depending upon the severity of the reflex cause, when present, and the possibility of thorough treatment. The

treatment of the reflex form is the removal of the cause, if possible. The lithæmic form is to be treated by moderate laxatives (the most satisfactory of which he had found to be the fluid extract of cascara sagrada), dilute nitro-muriatic acid (in twenty drop doses before meals), and, if the nervous symptoms are severe, by rest. In any case rest is a most important adjuvant, and should be proportioned to the needs of each particular case; it being better to have rather too much of it than too little. The diet should be regulated to a moderate degree by the entire withdrawal of either starchy or nitrogenous material for a short time, and then by cutting down the starchy material permanently by at least fifty per cent. In hot weather it is sometimes advisable to cut off the nitrogenous material for several weeks, and a complete change of air is often of the greatest benefit.

In the true cases of neurasthenia the best treatment is that advocated by Dr. Weir Mitchell, by rest, forced alimentation, massage, and faradism. Large doses of iron and malt extract should also be given with this treatment; the great difficulty with which is, however, that patients are apt to be disappointed at the loss of their muscular strength on first getting out of bed. It should be explained to them that this will gradually return; but great care is necessary with many patients at this period to prevent them from losing the flesh and red blood that have been gained. Galvanism is an agent of great value in all these forms of neurasthenia, and it should be used as early as possible, except when the case is to be put to bed. It should be applied by means of large sponges, one at the nape of the neck and the other on the dorsal spine; five to fifteen milliampères of electricity being used, and the sitting continued every day for from three to five minutes. Massage was an uncertain remedy, often irritating the patient, and was only to be used in connection with the rest treatment mentioned.

DR. E. N. BRILL said that but for Beard the affection, which is in reality only a convenient symptom-group, without pathological foundation, would never have been elevated to the position it occupies. Neurasthenia, as its name indicates, is simply exhaustion of the nervous system, and it may be dependent on any physical or mental condition which lowers the vitality of the individual. The trouble may originate in either local or general disturbances of the nervous axis. In general, he said, he was entirely in accord with the views of Dr. Gray.

DR. E. C. RIGGS, of St. Paul, said that in that peculiar sense of fulness of the head, scarcely amounting to pain, which Dr. Gray had mentioned in connection with lithæmic neurasthenia, he had found the bromides and ergot very efficient; while in the spinal type he had derived the most benefit from galvanism. Statical electricity, which he found was not looked upon with very much favor in New York at present, he had also used with good effect in many of these cases. It seemed to him to have a really useful application, but even if its effects are only psychical, as claimed by many, it might perhaps be well to use it with care in certain instances, just as Charcot employs hypnotism for its psychical influence. In the course of his remarks Dr. Riggs referred to the case of a young lady whom he believed to be suffering from neurasthenia; not being able to find any organic disease to account for the condition present. She continued to grow weaker and weaker, however, and afterward another practitioner made the diagnosis of a malignant tumor. At last she died and none of the organs was found to be diseased, nor were any new growths observed; the projection of the spine forward, in the patient's emaciated condition, having been mistaken for a tumor during life.

DR. W. R. BIRDSALL said that the term was one which had puzzled him not not a little—what to do with it, and whether he ought to use it or not. While he believed in neurasthenia itself, he said he often felt as if he were trying to cloak his ignorance in so designating a case. He recognized that it was insufficient for a class of cases sometimes met with. He thought, unquestionably, that we must admit a neurasthenic element in disease; yet at the same time when we attempt to apply it to a group of symptoms we find that it often fails. In many individuals the nervous tendencies predominate, and, as is well known, this is often the result of heredity, and it seemed to him that the great danger is in assuming that we have a congenital neurasthenic condition to deal with, when the symptoms are in reality due to local causes or merely temporary conditions. The class of cases which Dr. Gray called the lithæmic would probably comprise the greater number of these, and it is important that they should not be treated on the basis of an unstable or defective hereditary nervous system. The same difficulty is found in dealing with the insanities. If we are to use the term neurasthenia at all, then, he thought we should confine it to the class of individuals who suffer from hereditary defective nervous systems.

There was one point in which he did not quite agree with Dr. Gray. The latter had stated that in the class of reflex cases all that is necessary to do is to remove the cause. There is often, however, an acquired condition, the result of the reflex irritation, in which the whole nervous system is at fault. The removal of a local cause, whether about the eye, the nasal cavity, or elsewhere, is not always sufficient. In many cases we are also obliged to treat the individual for other neurasthenic symptoms cropping out in different forms. The classification of Dr. Gray was a convenient one, although it was difficult to make any classification that was wide enough. The first two forms, which were based on causation, were quite satisfactory. The third variety, simple neurasthenia, he did not altogether understand.

In the lithæmic class of cases there is a great field for study, and he was quite interested in Dr. Gray's treatment. The question of rest or of exertion for the patient was one which he thought must be specially determined in each individual case. In many instances increased activity of a kind entirely different to what the patient had been accustomed constitutes the most satisfactory means of treatment. Of the modes of exercise that may be tried, mountain climbing is undoubtedly one of the best. It secures a pure atmosphere, and increases respiration and the quantity of air taken into the lungs. In this way an amount of oxygenation and tissue-change is obtained which can hardly be brought about in any other way. The majority of these patients take very little exercise ordinarily, and it is important that the exertion made should not be too violent or prolonged. Another advantage of this moderate exercise is the mental occupation which it affords. Very few of the

cases are free from a hypochondriacal element, and the exercise of the muscles in tramping, rowing, etc., offers just that mild diversion which is needed, particularly if the patients are provided with the right sort of a companion, which is quite an important point. This hypochondriacal element is one of the most difficult to get rid of.

He stated that he had very little to say in way of criticism of Dr. Gray's paper. As he had said in the beginning, a large number of these cases do not belong to the hereditary class of unstable nervous temperament, but result from various causes in those who originally had no such tendency; among these causes being digestive troubles, business anxiety, emotional strain, rather than over-work proper, and sexual excesses, whether natural or unnatural. In the latter class of cases there was a peculiar unstable condition of the vasomotor system and often an exhaustion of all the nervous centres. This was an almost endless subject, and the question of therapeutics must be settled specially in each case. In conclusion, he said that if we use the term neurasthenia, he though it should be with the proviso that it is understood to comprise a group of symptoms which may belong to various conditions.

Dr. Wm. H. Thomson said that he thought the term neurasthenia is a very impressive one to use sometimes to patients, but otherwise he abominated it. It was to be placed on the same level as tonic, a word that led to more bad practice than any other in medicine, because remedies which act in all sorts of different ways are all called tonics. Neurasthenia was not near as good a word as anæmia, which at all events implied one special condition, and he thought it could not fail to lead to bad practice. He supposed that he had a great many patients coming to him all the time who were the subjects of neurasthenia—at least, that is what they said that other physicians told them that they had.

When a patient comes to him affected with nervous debility without appreciable organic disease, he always puts to himself the question whether the individual is not suffering from one of four things, viz., virtual starvation, over-strain, some unnatural drain upon the system, self-poisoning. Those who were the subjects of virtual starvation (usually females), it would be found, ate no breakfast worth speaking of, and probably took for their other meals principally tea, bread, and sweets. They did not take sufficient food to maintain their respiration and circulation, and the rest cure was, therefore, the best for them. In the second class rest and food were required, and often a change of surroundings. In the third class the drain should be checked if it could be done, and the patient would get well. The fourth class, that of self-poisoning, was the commonest of all. Two patients that had recently consulted him would illustrate this variety. One of them suffered from cloudy mind, with insomnia at night and dulness during the day, and he was cured with bismuth, calumbo, and naphthalin. The other case was very similar, and was also cured by intestinal antiseptics.

It was only very recently, Dr. Thomson said, that, after paying special attention to various divisions of the organism in turn, we were coming back to that old part of the body which our forefathers used to regard as of so much importance, the bowels. At all times fermentations are going on in the intestines, and at the best moments of our lives putrid ptomaines are going into the kidneys, the liver, and other organs. He was entirely satisfied now that the symptoms which are called uræmic are not due to urea in the blood at all, since the patient exhibiting them may be freely passing urea of the kidneys all the while. The trouble with such patients as he was now speaking of was, that they were suffering from prolonged self-poisoning, resulting from a deficiency of the natural antiseptics of the intestines, viz., the secretions. This was the lithæmic neurasthenia spoken of by Dr. Gray. In its diagnosis the pulse and the urine were his particular guides. In all the first three classes to which he had referred, there was an extremely weak and compressible pulse; while in all the lithæmic cases there was the opposite of this condition. There was either fulness or high tension after meals. In the first three classes the urine was of low specific gravity, and either neutral or alkaline in reaction. In the lithæmic cases, while there might be a low specific gravity if the kidneys were involved, as a rule the specific gravity would be high at certain times of the day. The urine also contained a large amount of urates, and was acid in reaction.

As to the question of therapeutics, he had faith in only one real cure, and that was for the patient to go and camp out in a tent in the woods. This would entirely change the character of the pulse and urine, and would clear up the nervous symptoms more completely and satisfactorily than any other method of treatment. No affection of this kind is ever seen in the nomadic races who live in tents, or in any individual who breathes enough. The trouble is that we do not breathe enough, and this is especially true of women.

Dr. A. Jacobi said that of late it had been the tendency in medicine to get rid, as far as possible, of all names given to symptoms merely. This was shown in such words as dropsy, paralysis, and even epilepsy. Neurasthenia is, in reality, less dispensable than any of these. We can speak of it properly as only a symptom, and it is a symptom common to so many conditions that the sooner it is gotten rid of the better. It is not simply weakness alone; we have been told that it is a chronic malnutrition of the nervous centres due either to various adventitious causes or to a hereditary tendency. But congenital neurasthenia does not exist alone. With it is associated weakness of the circulation and of the whole constitution. In every case of so-called neurasthenia, then, it should be our endeavor to make a diagnosis, if possible, of the original condition that gives rise to the symptoms met with.

As regards Dr. Gray's therapeutics, he thought that twenty drops of dilute nitro-muriatic acid were too large a dose, and he thought it much more philosophical to give this remedy after than before meals. In health lactic acid is present in the stomach during the first half hour after taking food, and in abnormal conditions there are fat acids, whose presence indicates an alkali rather than an acid.

Dr. A. D. Rockwell said that although unprepared to discuss the question at length, he could not refrain from the statement that he believed in the existence of neurasthenia just as much as he believed in the existence of malaria. With limitations, the term is a valuable one, although he thought it had been very much abused. The most important point of differentiation was

between primary nervous exhaustion and lithæmia. As to the manner of dealing with the lithæmic condition, the only way was for the subject of it to find out for himself what he could eat and what he could drink, and how he must work.

DR. S. BARUCH said that he was convinced that there was a complex of symptoms which was best designated by the term neurasthenia. In its treatment the principal indication is to promote tissue-change, and perhaps the most valuable method by which to secure this is hydro-therapy. Many of his patients suffering from this trouble he directed to take a cold plunge bath every morning; care being taken to secure prompt reaction. He still believed in the term tonic also, and he thought the cold plunge is one of the most valuable tonics we have.

DR. E. D. FISHER thought that the term neurasthenia is a valuable one, as it is very convenient to use until our knowledge of nervous diseases has become more complete than it is at present. The principal objection to its employment is the danger of mistaking for the condition it implies some of the grave organic diseases, especially in the incipient stage. It is, therefore, necessary to be on our guard in this respect. As regards the treatment of neurasthenia, since it represents merely functional disturbances, so far as we know, uniformity is impossible, and each case must be handled according to its individual circumstances. Personally, he had found dilute nitro-muriatic acid a very useful remedy in a large number of cases, and he usually combined it with Fowler's solution. Whether it can be defended on theoretical grounds or not, he always orders it to be taken fifteen minutes before eating, and, given in this way, it has often proved successful in improving the appetite and digestion, and in removing the nervous symptoms.

DR. GRAY, in closing the discussion, said that one of his objects in writing the paper was to elicit such an expression of opinion from various observers as he had now listened to. On the whole, it seemed to him that there was a very immaterial difference between his own standpoint and that of some of the speakers who objected to the use of the term neurasthenia. There are certainly many symptoms not of organic origin which we cannot classify without resorting to some such expression. It is, therefore, of practical service to retain it, and the subdivision into the three classes which he had indicated seemed to him a convenient one. In the future such advances will no doubt be made, that many points which are now obscure will be cleared up, and many of our present views modified.

The question as to the proper way of using nitro-muriatic acid, that had come up, seemed to be very much like that of calomel. While physiologists claim that the latter has no direct action on the liver, practical physicians go on using it with very good results. It was an actual fact that, of all the drugs of which he had made use for the relief of the so-called lithæmic cases, the one that had proved of the most value was dilute nitro-muriatic acid, and he had found, by long experience, that it acted most efficiently when given before meals.

As to the question suggested by Dr. Riggs, whether those suffering from neurasthenia do sometimes die, he had known of three cases, although he had not personally seen any of them, in which this seemed to be the fact. All of them were in the hands of skilful and experienced physicians, and in two of them autopsies were made, nothing being found at the examination in either instance to explain the cause of death. All the three patients simply gradually sank from exhaustion after several years of suffering.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, October 15, 1888.

THE PRESIDENT, J. R. MACGREGOR, M.D., IN THE CHAIR.

DR. J. ADLER read a paper entitled

SOME REMARKS ON AKROMEGLIA.

He said that in 1886 Marie first described a new affection to which he gave the name of akromeglia. This designation, which simply meant enlarged extremities, was not very satisfactory, but it had now been generally accepted, and in our present total lack of knowledge regarding the pathology of the disease, it would perhaps answer as well as any other. Since Marie's paper had appeared, several cases had been reported in Europe, but the patient presented this evening was the first that had ever been known in this country.

She was a native of Germany, thirty-four years of age, married, and first came under observation in February last, at the German Hospital. Her mother had died from the effects of a fall, but her father was still living. She also had three brothers living, all in the enjoyment of robust health. She was strong and healthy, she stated, up to the age of eighteen or twenty, the time of the onset of her present trouble not being clearly remembered. She began to menstruate in her fifteenth year, but the periods were always irregular and at the end of three years disappeared altogether. She thought she was about twenty when she first noticed that her feet would swell from time to time, although a bandage or a tight-fitting shoe, she said, would always readily reduce the swelling. About this time she also noticed some enlargement of the submaxillary and other glands.

The patient was unable to give any exact account of the present abnormal growth. She was married in her twentieth year, and when she was twenty-three her wedding ring became so deeply imbedded in the tissues of her finger that it had to be removed with a saw. She suffered principally from pain in the back and weakness, and was also subject to frequent attacks of migraine. The pain in the back she attributed to a long ride, from the effects of which she never recuperated. She was unable to walk, and spent most of her time in a semi-recumbent position.

On looking at the woman, one was at once struck with the immense size of the head and the marked projection of the lower jaw. At the first glance, it looked like a case of myxœdema, or one in which there had been complete extirpation of the thyroid gland. The entire cranium was greatly enlarged, and the protuberance of the occiput was especially marked. The lower jaw was immense, and the tongue was greatly hypertrophied and flabby. There was no alteration in the teeth, except that those in the lower jaw were separated to some extent from each other; and the hair was abundant. All the

lymphatics of the neck were greatly enlarged. On a superficial inspection there was an apparent lack of the thyroid gland, but a more careful examination, especially during the act of deglutition, showed that the left lobe and the isthmus could be distinctly felt, although the right lobe seemed to be wanting. No trace of the thymus gland could be detected. The clavicles were markedly enlarged, especially at their sternal extremities. The ribs were also greatly enlarged, and beginning kyphosis and a peculiar bulging shape of the chest, due to their hyperplasia, could be observed. There was comparatively little adipose tissue at any point. The bones of the arm and forearm all showed enlargement of the extremities, and there was reason to believe that slight lengthening of the shafts had also taken place. The hands were immensely enlarged, although there was no deformity of the nails, as has been noted in some of the other cases of akromeglia. The muscles everywhere were flabby and atrophied. The skin was markedly hypertrophied, but remained for the most part soft and pliant.

The same general condition of affairs was found in the pelvis and lower extremities. The feet were enlarged even more than the hands, being simply colossal in size, and there was also enormous hyperplasia of the epiphysial region and the patellæ in the legs. It was noticed that there was marked hyperæsthesia in all the hypertrophied parts, even slight pressure causing the patient to wince. As regards the internal organs, a careful examination of the eyes with the ophthalmoscope revealed no organic disease. Repeated chemical and microscopical examinations of the urine showed no evidence of any kidney trouble, and the red and white corpuscles of the blood were both found to be normal in number and appearance, although to the eye the patient seemed anæmic. The heart and lungs and all the other organs, as far as could be ascertained, were entirely normal. The appetite was fairly good, but the bowels showed a tendency to obstinate constipation.

The electrical examination showed some departures from the normal. The resistance of the skin to the faradic current was enormous. Otherwise the cutaneous sensibility was not diminished. As regards the galvanic current there was considerable diminution of the electrical excitability, which was most marked in the peronei of both lower extremities. Still, there was no evidence of any degeneration going on in the nerves, and the want of electric excitability could well be explained on other grounds. There was evidence of well-marked psychic degeneration in the patient. She was described as having been a bright and lively girl, but she was now very dull and apathetic.

Dr. Adler then went on to make some general remarks on akromeglia, founded on the observations of European authorities. In most particulars, he said, this case corresponded very closely with those met with abroad, but there was one feature which was peculiar to it (being noted in none of the others), viz., the widespread hyperplasia of the lymphatics. As regards the post-mortem appearances in this affection, Klebs was the only author who had made anything like a satisfactory report. He had found a general hyperplasia of the connective tissue and marked proliferation of the bloodvessels. There was also enlargement of the various nerves, especially the ganglia of the sympathetic. In the brain he found well-marked hyperplasia of the hypophysis cerebri, and the question naturally arose whether there was any connection between the enlarged hypophysis and the enlargement of the nerves. Klebs was inclined to attribute the disease to the proliferation of bloodvessels, but this was purely fanciful and speculative, and at present the true pathology of akromeglia remained shrouded in profound mystery. As regards the matter of prognosis, this was not particularly bad so far as life was concerned. In Europe two of the cases which had been first observed as long ago as 1867 were still alive. In some of the cases there were abnormal conditions of the heart. In most of them the thyroid gland was diminished in size or apparently altogether lacking; but in two it was markedly hypertrophied, and was no doubt diseased. Amenorrhœa was a constant characteristic of the disease.

Dr. W. R. Birdsall expressed the great pleasure it afforded him to see this case, the first of its kind ever reported in America. He did not think that he could throw any light on the pathology, though there seemed to him to be some mysterious connection between akromeglia, myxœdema, and extirpation of the thyroid. He said that he had at present under observation a young girl, suffering from amenorrhœa, who had developed some enlargement of the extremities of the phalanges of the hands, and, to a less extent, of those in the feet. It might, possibly, be an incipient case of akromeglia, but it was as yet too early to form a definite opinion in regard to it. As regards the electrical reactions in Dr. Adler's case, he thought we ought to be very guarded in drawing conclusions.

Dr. Adler said that it seemed to him that the hyperplasia in and about the nerves might of itself offer a sufficient explanation of the diminished electric excitability.

Dr. A. L. Carroll said that profound gratitude was due to Dr. Adler for the most admirable clinical demonstration which he had given of his unique case. Ever since he had first read an account of this new disease in the journals, he had been waiting in the hope that some one would find a specimen of it in this country, and it now afforded him extreme pleasure to have the opportunity of seeing the first one reported.

The question of treatment having been suggested, Dr. Adler stated that, in the total absence of knowledge of the cause of the disease, all treatment, so far as interfering with its progress was concerned, was without avail. The patient was simply kept in bed, and her functions regulated as well as possible. The attacks of migraine, to which he had referred, could always be efficiently combated with antipyrin.

Dr. J. Lewis Smith presented a

CASE OF ATHETOSIS.

As this was a comparatively rare affection, he thought this case ought to go on record. The patient was a girl of eighteen in his service at Charity Hospital. Both her parents had died of consumption. She stated that she was well up to the age of seven years, when she had an attack of scarlatina, complicated with diphtheria. This was followed by general dropsy, and she said that it was at this time that she first noticed the paralysis of the left side of the body from which she still suffers. One year later the arm began to be drawn backward behind the body, and it could now be seen in that position, like

a rudder, with tonic contraction of the extensor muscles, and the fingers thrown far back. Soon after the appearance of the paralysis, the patient began to suffer from epilepsy. The attacks were for a time of the nature of *petit mal*, but had gradually grown more severe, and now constituted *grand mal*.

DR. M. ALLEN STARR, at the request of Dr. Smith, prepared a communication concerning the case, which Dr. Smith then read, in which he gave a *résumé* of some of the latest researches in regard to the condition here met with. In it he stated that he found that all recent writers mention athetosis as a frequent complication of spastic infantile hemiplegias connected with epilepsy. In this condition club-foot was apt to be present, as here, and the patient walked on the toes. Such cases presented undoubted evidence of an irritation carried down to the spinal cord from the cortex, and as there was irreparable injury in the cerebral centres, nothing could be expected from treatment.

DR. W. R. BIRDSALL, on the invitation of Dr. Smith, made a demonstration of the case. He first called attention to the fact that the face and the left side were involved slightly in the contracture. Sometimes, when she brought the affected arm forward with the other arm—an action which required considerable exertion, the foot, which was habitually inverted, would become inverted. At night, as was usually the case in such patients, during sleep, he had no doubt that the arm became relaxed. These cases are mostly instances of infantile hemiplegia, and all that he had observed had begun before the age of ten years. There could be no doubt that Dr. Starr's explanation of the pathological condition is the correct one. There is a destruction of tissue in the cortical areas, by reason of which the impulses from the brain are transmitted irregularly, and not in a coördinate manner. The condition varies from the ordinary contractures met with in hemiplegics, in there being more mobility, and it also differs from ordinary athetosis, in which there are more movements with but little contracture. It was, therefore, a mixed case. Athetosis, as is now well known, is a symptom of hemiplegia, and particularly infantile hemiplegia. In infants an athetoid condition of the fingers is normal, these members being constantly in motion, and the earlier the paralysis occurs, the more marked will be the athetosis. This case was almost the exact counterpart of one that he had seen in a boy who also was in one of the city institutions on the island.

DR. DANIEL BROWN read a paper on

THE ARREST OF SECRETIONS IN THE ERUPTIVE FEVERS.

He took scarlatina as the type, and said that it is not so much the drain itself that proves fatal as the accidents and sequelæ liable to attend it. There is a marked determination to the skin and the mucous and lining membranes, and unless the secretions can be kept in efficient operation, serious inflammations are likely to result from the congestion incident to the irritation produced by the poison in the system. He is in the habit of commencing his treatment with small doses of bromide of potassium or sodium, and tincture of aconite root, the object of the bromide being to allay nervous irritability, and of the aconite to diminish the frequency of the pulse. In a short time he commences the administration of carbonate of ammonium, which for the last twelve years he said he had regarded as his sheet-anchor in the treatment, on account of its stimulating effect on the secretions. The dose is very small, only one-half or three-quarters of a grain, and it is usually repeated every hour or so, in a solution containing elixir of cinchona. The skin is kept anointed with vaseline, and at night he often gives small doses of jalap and calomel, as advocated by Professor William H. Thomson. Under this plan of treatment he found that the eyes or ears are seldom affected, and kidney trouble seldom ensues as a sequela. The treatment, of course, varies according to circumstances in different cases; but the chief point that he always has in view is the maintenance of the secretions.

DR. CHARLES A. LEALE said that while he regarded scarlatina as an acute, self-limited, infectious disease, there is always a certain amount of deleterious matter in the system to be gotten rid of, and it is of great importance to pay attention to all the glands and secretions, so that the poison may be eliminated. He would certainly be much delighted if he could find a remedy which would act as a preventive of complications and sequelæ but he did not know of one at present. The carbonate of ammonium, so lauded by Dr. Brown, he should think would only add another foreign element to the blood, and he believed that pure water would be much more serviceable in keeping the secretory organs free.

DR. S. B. W. MCLEOD said that he believed that, as a general rule, the less medicine is given the better, though after the acute stage the tincture of chloride of iron is usually of service in shortening convalescence.

DR. C. S. WOOD said that it was to be borne in mind that the fatality of diseases like scarlatina varied very greatly in different epidemics. At present the scarlet fever met with in New York is of a comparatively mild type, and the percentage of deaths from it is very small, except in those cases accompanied with diphtheria, which seemed to be now the complication most to be dreaded. The views advocated in the paper he believed were correct, and he had always found that aconite in small doses had a good effect on the function of the skin. In all the zymotic diseases he had been in the habit, for the past thirty years, of employing hyposulphite of sodium after the first day or two, and he was convinced that the sulphurous acid which was set free from this compound had a most beneficial effect in counteracting the poison in the system, whatever it might be. In many cases of scarlet fever, it seemed to him that this remedy had not only the effect of modifying the severity of the disease, but also of actually cutting short the attack to some extent.

DR. FARRIES thought that in scarlatina nothing fulfilled the indications better than aconite in small doses to lower the pulse, and a mild diuretic and sudorific containing buchu or uva ursi with a little sweet spirits of nitre. In addition, the surface of the body might be sponged every two or three hours with lukewarm water containing a little carbonate of sodium, for the purpose of reducing the temperature.

DR. LEALE said that in 1865, when he was in the army in Washington, where infectious diseases, particularly pyæmia and typhoid fever, were very prevalent a thorough trial was given the hyposulphite of sodium in this class of affections, and the conclusion was reached by the surgeons who experimented with it that it had no

appreciable affect upon them. In acute febrile diseases the two great objects are to eliminate and to maintain.

The President said that there were a certain number of cases of scarlet fever in which death resulted, not from any accident or sequela, but from the direct violence of the attack; the poison introduced into the system being so malignant as promptly to overwhelm the nervous centres and the powers of life like an avalanche. As regards the glandular system, there is always danger of trouble. For instance, in the kidneys, as the result of over-stimulation and over-action in eliminating a poison to which the organs are not accustomed, the epithelium of the glomeruli is apt to be thrown off, and in consequence of this tubular nephritis results. In the zymotic diseases in general, he thought other methods of treatment besides those aiming at securing elimination are often called for, and it is highly desirable that we should have at our command remedies which may act directly on the poison and have the effect of preventing fermentation. In conclusion, he said that in his experience he had found that, as a rule, any looseness of the bowels, whether occurring spontaneously or resulting from the use of cathartics, had an unfavorable effect.

Dr. Brown, in reply to the President, said that he did not by any means claim to cure all his cases. He quite agreed that the malignant cases referred to did sometimes occur; but in these he believed that if only a few doses of such remedies as the bromides could be given to allay the nervous irritability produced by the poison, there would result a certain amount of improvement, even if the effect was not sufficient to prevent a fatal termination; while in others, which would unquestionably prove fatal if left to themselves, death might be averted by the prompt measures adopted.

CORRESPONDENCE.

OPHTHALMOLOGY IN VIENNA.

To the Editor of The Medical News,

Sir: In a recent visit to the eye clinics of Vienna, I observed many little points in practice, especially in the technique of operative procedures, which may be of interest to ophthalmologists on this side of the Atlantic.

The principles of antiseptic surgery are thoroughly and religiously carried out, and have contributed much to assure success in these delicate operations. The instruments are kept in an antiseptic, hard-wood case, and are thoroughly boiled in pure water, before and after each operation. They are then extracted with forceps, and spread upon a porcelain slab covered with a moistened sheet of iodoform gauze. The operator having rendered his hands aseptic with soap and water, and with a 1 : 1000 bichloride solution, proceeds to disinfect thoroughly the conjunctiva with a 1 : 10,000 bichloride solution, being careful to evert the upper eyelid, and cleanse the internal canthus. The unaffected eye is then covered with a square of iodoform gauze and pledget of cotton, held in position by a strip of muslin passed obliquely, the extremities of which have been rendered adhesive with diachylon ointment. The operation completed, the eye is again washed out, the wound lightly dusted with iodoform powder, the same dressing applied as on the other eye, and protected with a roller bandage, starch bandage, or metal protective, according to the indications.

Plastic operations. For ectropion, instead of the ordinary operation of fitting in an attached flap from the face or forehead, transplantation, somewhat after the method of Prof. Thiersch, of Leipsic, the grafts being taken from the arm, has been utilized with the best results. The grafts are covered with moistened protective, iodoform gauze, cotton, and a starched bandage, and the denuded surface of the arm is preferably dressed with the dry protective powder of Prof. Thiersch,[1] and a dry dressing.

Iridectomy. When performed for optical purposes, the small, angular keratome is always employed, being considered safer than the bent, broad needle. When, however, it is performed for other than optical purposes, the large, triangular, bent keratome is preferred, and, in some cases, the small Graefe knife. The grasping and excision of the iris are done in the usual manner. In all cases the curette is employed to liberate any portion of the iris entangled in the incision; the wound is lightly dusted with iodoform, and a compress and metal protector applied.

Cataract extraction. The incision used by Prof. Fuchs, and by his assistant, Dr. Saltzman, is a modified Graefe linear incision, entirely in the sclerotic, the puncture and counter-puncture being somewhat higher than that ordinarily attributed to von Graefe. The iridectomy is performed in the usual manner. The anterior capsule is lacerated with the capsule forceps, which remove a segment of the capsule, and which have entirely replaced the cystotome. The removal of this segment was formerly accomplished by means of an iris forceps and scissors, after the laceration by the cystotome (Keyser). The lens and capsule are delivered in the usual manner, by pressure with a Daviel's scoop, and the iris is very carefully redressed with a curette. The dressing consists of the one already described, being supported and protected by a wire shutter (*augen schuts gütter*), an irregularly rectangular frame, bound with black braid, and secured by four tapes. Secondary or capsular cataracts are not so frequent after the use of the capsule forceps as when the cystotome is employed; but when they occur, and especially after discission, they are depressed with a needle, very much after the method of the old couching (reclination) operation.

Sclerotomy, as now generally performed, is not looked upon with favor, but the sclerotomy of de Wecker, with a small Graefe knife, is highly recommended.

Removal of foreign bodies. For the removal of foreign bodies from the vitreous, Hirschberg's electro-magnet is used, the same care being exercised to render the needles aseptic. The incision is made, with a Graefe knife, through the conjunctiva sclerotica, unless the object is known to be lodged in some other situation.

Enucleation is performed by the more rapid method, without the use of the strabismus hook. The tendon of the external rectus in the left (or the internal in the right) is firmly grasped with a fixation forceps, and, with the curved, sharp-pointed scissors, the conjunctiva is separated from its corneo-scleral attachment. The superior and inferior rectus are divided by sweeping the scissors round with one blade beneath and the other above the

[1] The formula for which is, zinci sulph., aluminis, pulv. talci, equal parts.

tendon. Traction is made, and by two or three successive snips the nerve is reached and divided, and nothing remains but the rectus on the other side, and a small quantity of connective tissue.

James K. Young.

Philadelphia, September 24, 1888.

STERILIZED MILK.

To the Editor of The Medical News,

Sir: In a letter published in your issue of October 6, 1888, page 403, I am somewhat warmly rebuked for "careless stricture" of the method of steaming milk suggested by Dr. J. A. Jeffries and others.

As Dr. Jeffries acknowledges that one steaming does not completely sterilize milk, I fail to discover wherein I have sinned in striving for a more perfect method, which may be taken as a standard for practical purposes. Whatever is worth doing at all, is surely worth doing well.

Dr. Jeffries claims that from milk steamed once "the child will obtain fewer bacteria than from the mother's nipple." Has he made an actual comparative count? Until he does so, the profession must decline to accept this dictum.

The most singular statement Dr. Jeffries makes, however, is that inasmuch as babies continually suck bacteria from their toes, etc., the few bacteria taken in steamed milk can do them no harm. This reasoning may satisfy Dr. Jeffries, but it will probably not be approved by the profession, since Pasteur, Kueppe, Lœffler, Lister, Schröder, and von Dusch have demonstrated that while boiling does kill the bacteria, there is subsequent to the boiling a development of infusoria and of bacilli capable of producing spores which will precipitate casein under alkaline reaction, and that nothing short of a continuous exposure for half an hour to a temperature of 86° F. will sterilize milk completely.

The object of my paper was chiefly to impress upon the profession the importance of sterilizing milk for infants, in the hope, that "when the facts referred to receive general recognition in the profession, dairymen would find it to their interest to obtain proper apparatus for sterilizing large quantities of milk and delivering it in appropriate sealed vessels to consumers in large cities." (The Medical News, July 7, 1888.) That this is not an Utopian idea, is demonstrated by the fact that it has already been adopted by a firm on Boylston Street, Boston, which claims to furnish "sterilized cow's milk preserved unsweetened in clean glass bottles."

Until this idea is more generally adopted, I welcome Soxhlet's apparatus and the methods of Drs. Jeffries, Rotch, and Caillé as steps in the right direction.

Simon Baruch.

47 East Sixtieth St., New York,
October 18, 1888.

DIET IN THE CONVALESCENCE OF TYPHOID FEVER.

To the Editor of The Medical News,

Sir: The discussion upon the management of the convalescent stage of typhoid fever, which took place at the recent Medical Congress, and your editorial (Oct. 13th) upon the same subject, both seem to me very timely and of more than usual interest.

From my own somewhat extensive experience, I am rather surprised that there should have been any disagreement in the matter. I have long ago concluded that the convalescent period of typhoid fever is about as critical as any other, and that if we know anything at all about the management of the disease, it is that the patient should be restricted to liquid food for at least seven days after the temperature has reached and remained at the normal, and longer if there still exist any abdominal pain or tenderness.

The necessity of such a course has so frequently been unpleasantly forced upon my attention, that I have come to regard any unheeding of the warning as being dangerously culpable. Very respectfully,

George B. Fowler, M.D.

11 West Forty-fifth St., New York,
October 17, 1888.

NEWS ITEMS.

An Injunction Preventing the Unauthorized Publication of Lectures.—The suit of Dr. Theodore G. Wormley, Professor of Chemistry and Toxicology in the Medical Department of the University of Pennsylvania, against Walter B. Saunders, a publisher, to restrain Saunders from publishing and selling books on general and medical chemistry made up of condensations from lectures delivered by the complainant, was argued last week in the Court of Common Pleas of Philadelphia.

It was admitted by the defendant, as a matter of law, that the deliverer of oral lectures still has the right of property in those lectures, but in this case it was claimed Dr. Wormley had abandoned his right of property because he permitted the defendant to publish the lectures without protest. Mr. Saunders said that the books containing the substance of the lectures had been sold on the market for several years, and that during all the time he has been selling these books he never received any notice from the complainant, or protest against their sale or publication. He believed that Dr. Wormley knew of these publications and sales.

The answer to this was that there was no evidence that Dr. Wormley knew of the publications, and that in point of fact when he did find out, about six years ago, that another party was printing and publishing his lectures, he compelled that person to surrender up all of the remaining copies and they were burned at the University of Pennsylvania.

Judge Allison, applying the principle of law stated above, said that the answer of the defendant failed to state that Dr. Wormley assented to the publications, that the only length it goes is to state the defendant's "belief" that Dr. Wormley knew of them, and defendant does not say that Dr. Wormley did not object to them. Judge Allison held that, as such averments had not been made, Dr. Wormley's right of property in the lectures remained unaffected, and the preliminary injunction which was granted restraining the publication and sale was accordingly continued in force.

A National Health Organization Wanted.—At a meeting of the Councillors of the Massachusetts Medical Society, held October 3, 1888, the following resolves were unanimously adopted:

That in the opinion of the Councillors of the Massa-

chusetts Medical Society, the present epidemic of yellow fever in several States of this Union has again made evident the imperative need of some organization on the part of the general government for the protection of the public health—an organization that shall be independent of existing bureaus, and solely devoted to this most necessary function of any form of government.

That this resolution be sent to the President of the United States, to members of Congress, and to the Boards of Health of the several States.

Treatment of Foul Ships.—In order to stimulate shipmasters to aid in securing a clean ocean-going fleet, the following regulation concerning the treatment of foul ships has been adopted by the Marine-Hospital Service, and will be observed at all National Quarantine Stations:

1. When a vessel arrives at any National Quarantine Station from an infected port, and requires disinfection, she will be subjected to *ordinary disinfection*, as provided in former regulations.

2. When any vessel shall arrive at a National Quarantine Station in such foul condition as to render her dangerous from a sanitary point of view, and is found to require cleansing and disinfection, having at any former time within one year been subjected to ordinary disinfection, such vessel will be required to undergo *extraordinary disinfection*, which, in addition to the ordinary measures, will include holy-stoning, scraping, the taking out of rotten wood, a second disinfection, and interior repainting, all of which will be required before granting a certificate of free pratique.

Rules for a Healthy Milk Supply.—According to Dr. E. H. Bartley (*Brooklyn Medical Journal*, October, 1888), the following rules contain some of the most important guides for the protection of the dealer in milk, as well as for the protection of the public:

1. The milk of diseased cows should not be sent to market. Any condition that produces a fever in a milch cow should be regarded as rendering the milk bad.

2. The milk of cows fed upon distillery swill, or those fed entirely or largely upon fermenting brewer's grains, should not be sold for infant's food.

3. Cows should not be allowed to drink stagnant pond or ditch water.

4. Milk from cows that are overheated or worried, at the time of milking, should not be sent to market.

5. If the udders are dirty, they should be washed clean before milking.

6. The milk should be cooled outside of the stable, and the cans should be covered during the process, to exclude air and dust. Milk should be kept at a temperature below 60° F., but ice should never be put into it.

7. Warm milk should never be received from the dealer, nor should the can be left out on the sidewalk in summer.

8. Milk should always be kept covered, and should never be kept in an ice-box with meats or vegetables possessing an odor.

9. Ice-boxes, stores, and wagons in which milk is kept, should be kept clean and sweet by occasional washing with chloride of lime followed by clean water, or soap and water.

10. When possible, only full cans should be received. A small full can is better than a large one partly filled, as the agitation and churning of the milk is less in a full can. Avoid the unnecessary handling of milk. The necessary agitation of shipping and delivering is an injury to it.

11. Milk that has been brought back from the morning rounds should not be mixed with other milk; it should be cooled at once, and sold as soon as possible.

12. If milk is kept over night, a small portion of it should be boiled to see if it will curdle, before it is sold.

13. Each and every dairy's milk should be tested daily.

14. It is best to make a contract with the one who delivers the milk to you to furnish that of a given test by the lactometer, say 105 to 110, and giving at least ten per cent. of cream.

15. Milk which contains dirt settling to the bottom of the can, blood, offensive odors or taste, should not be sold to customers.

16. *Cleanliness* in the handling of milk *is absolutely essential to its wholesomeness*.

Arsenical Dyes in Drapery.—In spite of many warnings impressed by precept and experience, arsenical pigments continue to be used in house decoration and to injure health as heretofore. A typical example of poisoning due to this cause is reported to have occurred quite lately in the Civil Engineering College at Cooper's Hill. The facts related are the following. Some of the students, with an eye for the beautiful, had, it appears, adorned their apartments with cretonnes and Indian muslins of great brilliancy. About the same time a singular epidemic became prevalent in the establishment and was attended with the irritable condition of the alimentary tract and other symptoms characteristic of the action of an irritant poison suspended in the atmosphere. The presence of arsenic was naturally suspected, but the wall-papers did not contain it. The cretonne and muslin decorations, however, were found on examination to be highly arsenical, and one piece, it is said, contained rather more than nineteen grains of this poison in the square yard. Here then was the source of an otherwise inexplicable state of general ill-health which had been observed among the students for a year past. Happily the cause at work was detected before any fatal consequences had occurred, and probably a liberal allowance of exercise in the open air had much to do with this result. The lesson taught by this occurrence is not a new one. It merely rehearses the characters of a once familiar danger and shows that it still exists. The public must therefore now decide whether it will, in the face of such practical instruction as this, continue to choose articles of dress or household ware with regard to custom or to their cheap attractiveness alone, and without a question as to quality. Nor would we warn purchasers to be chary only of the more gaudy hues, for even such colors as black and dark blue are frequently unsafe. Arsenic is no doubt the ingredient most to be avoided, but it should be remembered also that aniline dyes have often proved injurious. It appears likely, indeed, that this is to some extent a consequence of the fact that arsenic is freely used in their manufacture.—*Lancet*, July 28, 1888.

Precautions against Fires in Theatres.—The Prefect of Police in Paris has issued a new set of regulations with

regard to the fire brigade service in theatres, which will, it is thought, reduce very much the risk of fire, so far, at least, as it can be reduced in the many theatres in Paris which have always been, and must remain, from the position they occupy, regular death-traps. A certain number of firemen are allotted to each theatre, who under no pretence are to be called out of the theatre, or to receive visits from friends or acquaintances. The chief of the detachment has the responsibility of seeing that all the apparatus for extinguishing a fire is in its allotted place and in proper order, and the commissary of police is to satisfy himself that this has been done before the theatre opens.

During the representation the chief of the detachment must be constantly moving about to see that the men are at their posts; that no one is smoking in the corridors or carrying open lights; and that access to the reservoirs and fire-plugs is not hampered by placing any scenery or stage properties in the way. He is to examine the manometer, and, if he finds that there is a deficiency of pressure in the water-mains, he must inform the nearest post of the fact. In the event of an insignificant outbreak, recourse is to be had only to the apparatus within reach of the *foyer;* but if the outbreak is of a more serious character, the nearest post is to be informed by telegraph.

At the close of each representation the firemen are to make a round of the theatre, and see that the iron curtain is lowered, the buckets filled, and the folding doors closed, and, in the event of these not working smoothly, they must be repaired at once.

The manager of the theatre is required implicitly to obey the orders of the district commissary of police, who, in the event of an outbreak of fire, assumes the sole command of the theatre until the arrival of the Prefect of Police or the chief officer of the Fire Brigade.—*British Medical Journal*, October 6, 1888.

A Noble Fee.—Sergeant-Major Freyer, M.D., I.M.S., has received a fee of one lakh of rupees (£10,000 sterling) from H. H. the Nawab of Rampur, as a token of esteem as well as an acknowledgment of his valuable services in the successful treatment of himself and General Azimuddin Khan, the popular head of the Administrative Agency of the State, who had suffered for nearly three months from a malignant rheumatic fever; his recovery has been the occasion of great rejoicing at Rampur. This is said to be the largest fee ever received by a medical practitioner in India, and probably has never been exceeded in any country.—*British Medical Journal*, October 6, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 16 TO OCTOBER 22, 1888.

PAGE, CHARLES, *Colonel and Assistant Surgeon-General, Medical Director of the Department.*—Will proceed to and inspect the Medical Department at Forts Ellis, Texas; Supply, Reno, Sill, and Gibson, Indian Territory; Fort Leavenworth, Kansas, and the Leavenworth Military Prison, in the order named, and upon completion of this duty, return to these Headquarters.—Par. 1, *S. O. 127, Headquarters Department of the Missouri, Fort Leavenworth, Kansas*, October 15, 1888.

COMEGYS, EDWARD T, *Captain and Assistant Surgeon.*—Is relieved from duty at Madison Barracks, New York, and will report in person to commanding officer Fort Bayard, New Mexico, for duty at that post, relieving First Lieutenant and Assistant Surgeon William D. Dietz.—Par. 18, *S. O. 240, A. G. O., Washington*, October 15, 1888.

DIETZ, WILLIAM D., *First Lieutenant and Assistant Surgeon.*—On being relieved by Captain Comegys, will report in person to commanding officer Alcatras Island, California, for duty at that post, reporting by letter to the commanding general Department of California.—Par. 18, *S. O. 240, A. G. O., Washington*, October 15, 1888.

MUNDAY, BENJAMIN, *Captain and Assistant Surgeon.*—Is relieved from duty at Jefferson Barracks, Missouri, and will report in person to the commanding officer Fort Sisseton, Dakota, for duty at that post, relieving First Lieutenant and Assistant Surgeon John L. Phillips, and reporting by letter to the commanding general Department of Dakota.—Par. 11, *S. O. 242, A. G. O., Washington*, October 17, 1888.

PHILLIPS, JOHN L., *First Lieutenant and Assistant Surgeon.*—On being relieved by Captain Munday, will report in person to the commanding officer, Fort Lyon, Colorado, for duty at that post, reporting by letter to the commanding general Department of the Missouri.—Par. 11, *S. O. 242, A. G. O., Washington*, October 17, 1888.

By direction of the Secretary of War, the following named officers of the Medical Department will report, in person, on October 23, 1888, to the President of the Army Medical Examining Board, ArmyBuilding, New York City, for examination for promotion: JOHN DE B. W. GARDINER, *Captain and Assistant Surgeon;* WILLIAM C. GORGAS, *Captain and Assistant Surgeon;* C. N. BERKELEY MACAULEY, *Captain and Assistant Surgeon;* W. L. KNEEDLER, *First Lieutenant and Assistant Surgeon;* EDGAR A. MEARNS, *First Lieutenant and Assistant Surgeon.* Upon the completion of their examination, the officers named will rejoin their proper stations.—Par. 1, *S. O. 239, A. G. O., Washington, D. C.*, October 13, 1888.

BALL, R. R., *First Lieutenant and Assistant Surgeon* (U. S. Army).—Is granted leave of absence for one month, with permission to apply for an extension of one month.—Par. 3. *S. O. 129, Headquarters Department of the Missouri, Fort Leavenworth, Kansas*, October 18, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING OCTOBER 20, 1888.

MAGRUDER, A. F., *Surgeon.*—Ordered to Marine Barracks, Washington, D. C.

STONE, E. P., *Assistant Surgeon.*—Detached from the "Richmond," and ordered to the "Minnesota."

KEENEY, J. F., *Assistant Surgeon.*—Detached from the "Minnesota," and ordered to the "Richmond."

MCCORMICK, A. M. D., *Assistant Surgeon.*—Detached from the Bureau of Medicine and Surgery, and ordered to the "Vermont."

MOORE, A. M., *Surgeon.*—Detached from Naval Station, New London, Connecticut, and ordered to the "Kearsarge."

AUSTIN, A. A., *Passed Assistant Surgeon.*—Ordered to Naval Station, New London, Connecticut.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING OCTOBER 20, 1888.

ARMSTRONG, S. T., *Passed Assistant Surgeon.*—Granted leave of absence for sixteen days, October 17, 1888.

WOODWARD, R. M., *Assistant Surgeon.*—When relieved at Marine Hospital, Boston, Mass., to proceed to Marine Hospital, Chicago, Ill., for duty, October 12, 1888. Granted leave of absence for thirty days, October 17, 1888.

CONDICT, A. W., *Assistant Surgeon.*—Relieved from duty at Marine Hospital, Chicago, Ill.; ordered to Marine Hospital, Boston, Mass., October 12, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, NOVEMBER 3, 1888. NO. 18.

ORIGINAL ARTICLES.

ANTISEPTIC MEDICATION.[1]

BY FREDERICK P. HENRY, M D,
PHYSICIAN TO THE EPISCOPAL AND PHILADELPHIA HOSPITALS.

My purpose in bringing the subject of antiseptic medication before this Association is not so much to make an elaborate report on the existing knowledge concerning it, the principles on which it is based, the results it has accomplished, and my own experience of its application, as to elicit a general expression of opinion upon what appears to me the foremost therapeutic question of the day.

The great principle of antisepsis is of general application in the treatment of disease. It is not limited to the domain of surgery, although to surgeons is due and gratefully accorded the merit of having shown the dangers due to absorption of products of fermentation and putrefaction and the means of avoiding them. The revolution thus brought about has been witnessed by every member of this Association. It is an accomplished fact and, at the present time, the applications of antisepsis in this field are so perfect, so precise, that surgery, in some of its departments, may almost be ranked among the exact sciences.

Antisepsis, in surgery, consists in preventing the absorption of toxic substances from a pathological surface. This is true also to a certain extent in medicine, although here, in many instances, the surface from which absorption takes place is physiological. The difference between antiseptic medicine and antiseptic surgery is one of degree rather than of kind. In the former the antiseptic agent is directly applied to the absorbent surface; in the latter it can, in most instances, only exert its action after having run the gauntlet of the greater portion of the intestine, or even after it has been absorbed and excreted. The problem in the latter case is much the more difficult of the two, but is one which, as I propose to show, is in the course of successful solution.

LAVAGE.

A well-defined line can be drawn between gastric and intestinal antisepsis for the reason that in the former we have one remedial measure *par excellence* to which all others are subordinate. I refer to lavage, and it is an interesting fact that Dujardin-Beaumetz, who opposed this method of treatment when first introduced by Kussmaul in 1867, is now one of its most ardent advocates. He believes it to be indicated whenever the stomach is dilated, no matter what may be the cause of the dilatation. The operation, which may be compared to catheterism for the relief of a distended bladder, is not to be performed without certain precautions. In the first place, it should not be performed too frequently. Once in twenty-four hours is often enough. Secondly, the water employed should be at, or near, the temperature of the body. Thirdly, in order not to interfere with the digestion of which the stomach may be capable, it should be performed during a period of abstinence from food, *e. g.*, early in the morning. These precautions are by no means founded on theory alone. If lavage is repeated too often, it not only fatigues the patient, but may lead to grave accidents. For example, in a case reported by Dujardin-Beaumetz to the *Soc. Méd. des Hôpitaux*, October 26, 1883, the patient experienced great relief from the treatment and having learned to wash out his stomach for himself, acquired the habit of doing so several times a day. This abuse of the method gave rise to muscular contractions which, beginning in the upper extremity, soon became general, and the man died with all the symptoms of tetanus. Lavage has been most often employed in the treatment of dilatation from pyloric stenosis, and certainly with most satisfactory results. The painful distention of the stomach, the nausea, regurgitations, and vomitings are, in most cases, allayed by this simple means.

There is another form of gastric disorder often overlooked and only recently clearly differentiated, in which lavage is of most signal service, viz., that in which the gastric juice, instead of being secreted only when there is food in the stomach, is poured out when the viscus is entirely empty. This condition of hypersecretion must not be confounded with hyperacidity. The latter consists in a too liberal response to a physiological summons, while the former is gratuitous. First described by Reichmann in 1882, cases have since been reported by Sahli, Schütz, von den Velden, and especially by Riegel, who, in the course of eighteen months, observed twenty-nine cases. According to the latter, lavage should be practised in cases of hypersecretion just before the principal meal and in no other affection is it attended with greater benefit.

[1] Read by title before the Association of American Physicians, Washington, 1888.

For washing out the stomach simple water is sufficient, but when the viscus is emptied it may be finally cleansed with an antiseptic solution, such as salicylic acid three-fifths per mille, or borax two-fourths per cent. These harmless substances are quite efficacious, although benzoic acid, naphthalin, potassium permanganate, and resorcin are recommended. The latter substance is unsafe, except in very weak solution. Escherich[1] reports a case of poisoning from lavage with a one per cent. solution of resorcin. The patient was a woman, æt. thirty-five, who, after lavage, became restless and cyanotic and soon lost consciousness. Clonic and tonic spasms then set in, the latter affecting particularly the masseters and the respiratory muscles. There were trismus and prolonged spasm of the glottis with stoppage of respiration, during which the face was extremely livid and cold drops of sweat stood upon the forehead. After life had been maintained for about two hours by continual artificial respiration, natural breathing and consciousness returned, but the action of the heart now became weaker and it was only by the most energetic measures that life was saved. For hours the patient lay in a stupid, drunken-like ("rauschartig") condition.

INTESTINAL ANTISEPSIS.

The principal field of antiseptic medicine is the intestine, and this fact, which is one of increasing importance, has been recognized ever since Selmi, in 1872, discovered in the products af putrefaction, and even in fresh vegetable tissues, certain substances closely resembling the vegetable alkaloids to which he gave the name of ptomaines.

It is, however, justly claimed, that Semmola, who twenty years ago administered the alkaline and earthy sulphites with the object of destroying certain supposititious substances of a toxic and pyrogenic nature, was the first to institute a treatment based upon the idea of intestinal antisepsis.

At the present day it is very generally held that many forms of diarrhœa are due to irritation by substances which have escaped the powerful antiseptic action of the bile and gastric juice, while it is believed by some that many of the grave nervous symptoms of the continued fevers, the so-called typhoid symptoms, are due to the absorption of similar products.

The therapeutic problem is to administer such substances as will supplement the defective action of nature's antiseptic secretions, a problem which, as I have already stated, is in the course of successful solution. It is not my intention in this paper to enumerate the many substances that have been used to fulfil this indication, but merely to give some details concerning the few of which I have had some experience.

Naphthalin.—This substance was first employed by Rossbach in 1884 as an intestinal antiseptic. He obtained excellent results from it in the treatment of chronic intestinal catarrh, either with or without ulceration, and in typhoid fever, in which disease, when early administered, he believes it exerts an abortive effect. Thirty-five cases of typhoid in Rossbach's medical service at Jena were treated with naphthalin by Götze, all of which took over seventy grammes in the course of their treatment; many of them over a hundred and fifty grammes. The favorable effect of the drug was shown by the number of the stools, which averaged from one to three daily. Severe diarrhœa, requiring the addition of opium to the treatment, was observed in but three cases. The pain in the ileo-cœcal region rapidly diminished, disappearing, as a rule, on the second day. On account of the dark color of the urine produced by the drug, this fluid was frequently examined and the albuminuria in this series of cases was no more frequent or severe than in cases of typhoid in general. In one case in which death was caused by croupous pneumonia there were acute nephritis and typhoid ulceration of the renal pelvis, the former being due to the latter.

Of the 35 cases, 17 (50 per cent.) were so materially shortened in their course that the term "abortive" is fairly applied to them, while the course of the fever was favorably influenced in the others. Of the 35 cases, 3 died, but not, it is claimed, from typhoid. In the first, a vulvo-vaginitis extended to the large intestine and bladder, which were found in a state of diphtheritic inflammation. Of the other two, the first died of croupous pneumonia of the right upper lobe; the second of double bronchopneumonia and tracheal diphtheria. The claim that these deaths were not due to typhoid fever is, in my opinion, preposterous, and, therefore, the mortality, instead of being nil, as Götze would have it, is about 9 per cent. This is small, but the cases are too few to warrant any deductions under this head. The favorable course pursued by the great majority of Götze's cases would lead one to expect still better results from a more extended use of the drug.

There is a large concourse of testimony to the good effect of naphthalin in chronic intestinal catarrh, the results obtained by Rossbach, Pauli, Pribram, Kraemer, Widowitz, and Wilcox having been invariably good. An extensive experience with this drug during a recent six months' term at the Philadelphia Hospital, enables me to corroborate their statements.

In the *St. Louis Med. and Surg. Journal* for March, 1887, Dr. R. W. Wilcox, of New York, gives his experience with this drug in the treatment of

[1] Centralblatt für Bakteriologie und Parasitenkunde, Bd. ii., No. 21.

thirty-two cases of diarrhœa, most of them chronic. "All the cases were relieved in periods of from one week to two months; generally about ten days were sufficient for a cure." The cases of Wilcox, like my own, were nearly all adults.

Dr. Josef Widowitz[1] has employed naphthalin in thirty-three cases of intestinal catarrh in children, and concludes that in the so-called dyspepsia of children with clay-like stools and vomiting of curds, naphthalin is without effect, while in all other forms of intestinal catarrh in children it deserves the preference over all other remedies. This apparent exception to the beneficial action of the drug is, in reality, none, for the condition referred to is gastric or gastro-duodenal catarrh. Widowitz administers naphthalin to small children in the following formula:

R.—Naphthalin. pur. . . . . 0.30–1.
Mucilag. gummi Arab.,
Aq. chamom. . . . āā 40
Olei menthæ pip. . . . gtt j—M.

After shaking well give a teaspoonful every two hours. The amount given during the day should be from 0.3 to 1 gramme.

If one may judge from the practice of those who have employed this drug, their opinions with reference to its dose are very different. For example, the dose employed by Kraemer,[2] whose success with naphthalin has been brilliant, did not exceed one gramme daily. With this amount he speedily cured ten cases of intestinal catarrh which had lasted a year in spite of other treatment. He also succeeded in completely expelling the oxyuris vermicularis in cases which had resisted all the usual vermicides employed both per os and per clysma.

On the other hand, Wilcox believes that the most frequent cause of failure with this drug is due to the use of too small doses, and considers the administration of less than sixty grains daily as a "needless waste of very good medicine." Accurate dosage is certainly not essential to the administration of this drug. It is insoluble, not only in water, but in acids and alkalies, so that it reaches the intestines unaltered and, in fact, appears, for the most part, unchanged in the feces. A minimum part of it is absorbed and appears in the urine partly as such and partly as alpha-naphthol. Although the amount that passes out with the urine is small, its antiseptic effect is so great that, according to Rossbach, the urine of patients who have been taking naphthalin may be kept for weeks, and even months, in a warm place without losing its acid reaction and without decomposition.[3] In accordance with these facts, the internal employment of naphthalin in light chronic cystitis has been attended with excellent results. In one or two days the cocci disappear, the pus sediment diminishes, and there is marked improvement in the local and general conditions. In severe, chronic, incurable cases, temporary improvement is the most that can be expected, as in a case of tuberculosis of lungs, bladder, and kidneys reported by Rossbach.[1]

With reference to certain unpleasant effects that have attended the administration of naphthalin, Rossbach states that, with the exception of slight burning in the urinary passages lasting only a few days, and fugitive pains in the neighborhood of the kidneys, serious symptoms due to the drug itself were observed in only 2 out of 150 cases. Severe strangury was observed in these 2 cases, both of which were tuberculous. One was in the last stage of pulmonary and intestinal tuberculosis; the other, in whom an inflammation of the prepuce set in on the third day of administration of the remedy, bore it well after it was suspended and resumed in smaller doses. Evil effects from this drug are almost invariably due to the fact that it is impure. A case in point is that of a butcher's powerful apprentice, who, after the third gramme of naphthalin, suffered from severe strangury. An examination of the drug showed that it was impure, being gray instead of white. On the day following, the same patient took seven grammes of a pure preparation without a bad symptom.

While large doses of naphthalin are being administered, the urine is of a dark, even black, color, but this fact is of no evil significance. When administered with ordinary care, the worst that can happen is occasional burning pain in the urinary passages, and to refuse, on that account, to employ in chronic diarrhœa a remedy which has cured many of the most obstinate cases, would be, to quote Rossbach, about as sensible as to banish iodine and potassium iodide from therapeutics because now and then they give rise to acute coryza and palpitation of the heart.[2]

The mode in which naphthalin and other drugs intended to act directly on the intestine are prescribed, is by no means unimportant. Probably the best method of administration is that recommended by Unna. The drug is made into a mass with some fat, such as cocoa butter, which melts at the temperature of the body, and each individual pill is surrounded with a layer of the same substance. They are then coated with a layer of keratin (Hornsubstanz) which is insoluble in the acids of the stomach. The keratin is applied to the pills in solution in ammonia, but before this it is digested in an artificial gastric juice to free it from substances which, but for this process, would be dissolved in the

[1] Jahrbuch für Kinderheilkunde, Bd. xxvi Hefte 3 und 4, 1887.
[2] Berlin. klin. Wochenschrift, Jan. 18, 1886.
[3] Einfluss des innerlichen Naphthalingebranches auf die Harnfäulniss. Rossbach, Berlin. klin. Wochenschrift, Nov. 17, 1884.

[1] Loc. cit. [2] Berlin. klin. Wochenschrift, April 6, 1885.

stomach. The keratin coating of these pills is dissolved by the alkaline fluids of the small intestine and their fat is saponified so that the remedy is set free to exert its local action. Unna has employed in this manner tannin in intestinal catarrh and ext. filicis maris in cases of tapeworm, with good results, and recommends that astringents and styptics be thus administered, especially in intestinal hemorrhage.[1] Dr. F. Kræmer, of Munich, has employed these pills and thinks that by this mode of administration many of the unpleasant effects attendant upon the use of naphthalin are avoided.

Probably the most common mode of administering naphthalin is in gelatine capsules. It is important, therefore, to remember that gelatine capsules should not be given to a patient who is taking alcohol, as they are rendered insoluble by that substance. Tannic acid has the same effect. This subject is referred to in an editorial in *The Southern Practitioner* for September, 1886, in the course of which the writer mentions the fact of a physician having prescribed tannic acid in gelatine capsules. Gelatine capsules are not only insoluble in a stomach which contains alcohol, but also in one that is suffering from the effects of alcohol. "When the stomach is inflamed and irritable, following excess in the use of spirits, medicines should not be given in capsules (gelatine)." "Neither chloral nor morphia should ever be given in this form to inebriates; it is useless."[2]

THYMOL.—In THE MEDICAL NEWS of September 3, 1887, I published my experience with thymol in the treatment of twelve cases of typhoid fever. My attention was first called to this drug by Martini's elaborate article in the *Annali Universali di Medicina e Chirurgia*,[3] February, 1887, and I was induced to publish my observations with it, not only because they were corroborative of Martini's statements, but also because they were confirmed by my colleague, who succeeded me at the Episcopal Hospital and who continued to employ the drug. Since that time I have used thymol in eight additional cases of typhoid fever and in a large number of cases of diarrhœa, acute and chronic. With reference to the former I have only to quote from my article in THE MEDICAL NEWS: "The favorable effect of the drug was evinced by a steady descent of the temperature, by a gradual diminution in the daily number of stools, by the absence of mental excitement, and, most conspicuously, by the clean, moist tongue presented in every instance." In the series of twenty cases there has been one death which was caused by one of the rarest events in the course of typhoid fever—rupture of the spleen.

That thymol when taken *per os* exerts an antiseptic action upon the intestinal contents, is proved beyond doubt by the fact that, during its administration, phenol disappears from the urine. "This substance, one of the most constant products of intestinal putrefaction, is eliminated, for the most part, by the urine, where it is found even in health, and experimental therapeutists regard its amount in that fluid as a test of the effect of an intestinal antiseptic."[1]

The symptoms known as "typhoid" are common to a number of diseases and their distinct amelioration after the administration of an intestinal antiseptic is strong evidence in favor of the view that they are largely due to poisoning from absorption of products of intestinal putrefaction. On account of its great insolubility, a property upon which its value as an intestinal antiseptic largely depends, thymol must be prescribed in pill or capsule. One of the best excipients for thymol is medicinal soap. As to the dose, my practice has been to give from 30 to 40 grains in twenty-four hours—two 2½ grain pills every three or four hours, although much larger quantities may be given with perfect safety and, perhaps, with still better results. I have given thymol to all the cases of diarrhœa, acute and chronic, under my care during a six months' service at the Philadelphia Hospital, and, excepting a few cases of intestinal tuberculosis, with invariably good results. I regret that I cannot obtain the number of these cases in time for publication. To those familiar with the hospital in question, it is scarcely necessary to say that my opportunities for testing the drug were great.

MERCURY.—As I have no present intention of writing a treatise on antiseptic medicine, I will neither refer to the various modes of administering mercury nor discuss the question how far its beneficial effect, in general, may be of an antiseptic nature, but will simply give my experience of its employment in the treatment of erysipelas.

The evidence that erysipelas is a local disease due to a microörganism is overwhelming, but, if I may judge from a recent discussion in a Philadelphia medical society, it has not yet come to the knowledge of some of the most prominent members of our profession. I will, therefore, briefly recapitulate the result of an investigation of the subject.

It has been thoroughly demonstrated by Fehleisen and others that erysipelas is caused by the presence of a living organism, a micrococcus, in the lymphatic vessels of the skin. This organism, which is usually observed in the form of chains or strings of beads, and is, therefore, known as a streptococcus, has been isolated by successive cultures and inocu-

[1] For description of these pills see article by Pribram, Wiener med. Presse, February 1, 1885.

[2] Medical Record, January 15, 1887

[3] Dell'efficacia del timolo nella disinfezione intestinale.

[1] Editorial in THE MEDICAL NEWS on Intestinal Antisepsis, June 11, 1887.

lated into rabbits with the result of giving them an attack of erysipelas. The animals inoculated were nine in number, and of the nine, eight had a well-marked attack of the disease, starting from the tip of the ear in which the inoculation was made. The period of incubation—*i. e.*, the time between the inoculation and the first signs of inflammation, varied between thirty-six and forty-eight hours. Denucé, a French observer, has repeated these experiments upon six animals, five rabbits and one dog, with positive results in every case. Such evidence would be accepted by most individuals as sufficient to prove the dependence of erysipelas upon a micro-organism; but, Fehleisen has gone a step further, and inoculated seven human beings. He did this on the ground that it was not only for the benefit of science, but for that of the individuals themselves, although it does not appear that they were consulted on this point. It has long been observed that chronic eczematous affections, glandular swellings, lupus, and multiple sarcomatous tumors have disappeared after an attack of erysipelas, and it was upon individuals afflicted with such diseases that the experiments were made. All but one of these experiments were successful from the standpoint of experimental pathology, but the therapeutic results hardly warrant the addition of the streptococcus of Fehleisen to the Pharmacopœia. In fact, a woman forty years of age, with scirrhus of the breast, who was inoculated with erysipelas by Janicke and Neisser,[1] died four days after the operation. It was a satisfaction to these experimenters to observe at the autopsy that the micrococci artificially introduced had penetrated the cancer cells and destroyed them in large numbers. The remedy, however, if such it can be called, was undoubtedly more malignant than the cancer itself.

The above facts are quite sufficient to prove that erysipelas is a local parasitic disease, and to justify a local germicidal method of treatment. A treatment based on these views of the nature of erysipelas was first recommended by Hueter. It consisted in the subcutaneous injection of a two per cent. solution of carbolic acid, manifestly with the object of destroying the parasite. Its success was not striking, and an attempt to improve it was, therefore, made by Dr. Kühnast, of Freiburg, who concluded from a study of three cases that multiple scarification and the application, with rubbing, of a five per cent. solution of carbolic acid, were the best treatment yet devised. This may be true; but, if so, there are numerous exceptions to the rule. In the first place, this method cannot be applied to that part of the body—the face—which is the most common site of erysipelas, on account of the danger of subsequent scarring. Secondly, it is so painful that the operation must be performed under ether. Finally, in the case of children and weakly individuals its upholder recommends that boric or salicylic acid be substituted for carbolic. Surely the objections to this treatment are so great that it can never come into general use.

[1] Centralblatt für Chirurgie, 1884, p. 401.

Thinking that the want of success attendant upon the subcutaneous injection of carbolic acid might be due to the inherent inefficacy of that drug, I have lately been treating erysipelas with hypodermatic injections of the bicyanide of mercury. My reason for employing this salt in preference to corrosive sublimate is that the former is compatible with cocaine while the latter is not. A hypodermatic injection of corrosive sublimate is so painful that few will consent to its repetition, while the bicyanide, as I have employed it, is comparatively painless. The following formula is the one I am accustomed to use:

R.—Hydrarg. bicyanid. . . . grs. ij.
Cocain. hydrochlorat. . . . grs. iv.
Aquæ destillat. . . . . ℥ss.—M.
Fifteen minims to be injected beneath the skin.

I have made about two hundred injections of this mixture in cases of syphilis and erysipelas, always using the dose above mentioned, and have never seen any untoward constitutional symptoms from it, beyond a momentary faintness which I attributed to the cocaine. Several of the patients were delicate women.

I have treated ten cases of erysipelas capitis[3] with injections of the bicyanide, and without entering into details I may state that when the disease is beginning, for example, at the side of the nose and extending toward one or both cheeks, this treatment tends to abort it. It is of great importance that the injection be made, not into the inflamed patch but a little beyond its border.

Erysipelas, from a pathological standpoint, consists of two stages. During the first there is an accumulation of micrococci in skin which is apparently healthy. During the second there is a displacement of the micrococci by out-wandered white cells which dispose of the former by incorporating them into their substance so that under the microscope they present a granular aspect. In order, therefore, to abort an attack of erysipelas the injection must be made in the apparently healthy skin at least one-half inch beyond the advancing border of inflammation. I have seen at least three cases of erysipelas which were aborted by the treatment above outlined. These, all hospital cases, were seen at an early period of the disease, while, in the others, it was widespread at the time of admission. I do not consider this treatment effectual after the disease has lasted more than forty-eight hours. It is a singu-

[3] My thanks are due to Drs. Atlee and Dercum for their assistance in carrying out this treatment.

lar fact that in the majority of my cases, the injections of the bicyanide gave rise to abscesses. I consider the fact singular because the substance injected is a powerful antiseptic, and because I have given about one hundred and fifty of the same injections to two women with syphilis, without the slightest suppuration ensuing. In using the injections strict antiseptic precautions were employed: among others the needle of the hypodermatic syringe was heated in a spirit lamp.

The following abstract will serve as a sample of those cases treated at a comparatively early stage:

John H. W., æt. fifty-one years, admitted April 19, 1888, with erysipelas in both cheeks, but more extended on left side. The attack began four days ago at the site of a recent cicatrix resulting from an injury received about four weeks previously. Febrile reaction was slight, the temperature at evening being 100°. The urine was free from albumen. Fifteen minims of the bicyanide solution were injected into each cheek beyond the border of the inflammation.

20*th*. The cheeks are not so much inflamed and the inflammation has not extended. Two injections were given, both on the left side; one in the temporal region, the other in the neck.

21*st*. The inflammation is gradually subsiding in the cheeks and *has not extended its area*. The temperature fell to normal on the 22d, and did not subsequently rise above 99°. The man was discharged from hospital on the 30th of April.

In another case, seen when the inflammation had not lasted more than twenty-four hours and involved only a small area about the ala nasi, one injection effected a cure.

Certain facts seem to show that the micrococcus of erysipelas develops most rapidly when the part affected is exposed to the air; or, rather, this is an inference from the effects of a treatment which excludes the air from it. For example, Mr. Barwell, of Charing Cross Hospital, has treated erysipelas by the application of white lead paint, with the result of speedily relieving the pain and reducing the fever; the patient rapidly recovering. W. Otto, of Germany, following the suggestion of Barwell, has excluded the air with a mixture of two parts wax, twenty parts of "Siccativ," and one hundred parts of linseed oil varnish ("leinölfirniss"). His cases, five in number, all did well, the disease in no case lasting longer than ten days.

One of the latest remedies proposed for erysipelas is ichthyol,[1] which is a yellowish-brown oily substance obtained by distilling a bituminous matter found in the Tyrol, and composed of the fossilized remains of fishes and marine animals. It is used in the form of the sodium or ammonium sulph-ichthyolate. Von Nussbaum claims that this substance will abort erysipelas, but it did not do so in the only case in which I gave it a thorough trial. The course pursued by this case was, however, remarkably favorable. Von Nussbaum supposes that ichthyol alters the tissues in such a manner as to make them an unfit medium for the growth of the parasite. It is, however, quite as likely that both it and the white paint, as well as the liniment used by Otto, act by excluding the air. Whether this be the case or not, such measures are probably antiseptic in their action, although inferior in this respect to a method such as that I have described and employed, which brings the germicide in direct contact with the germ.

The lack of time and space forbids a further consideration of this interesting subject. Otherwise, under the head of intestinal antisepsis, I would have referred to some interesting facts concerning the action of cotoin, salol, and bismuth salicylate.

In conclusion, I will merely refer to certain observations which not only show that microörganisms may subserve some useful purpose in the economy, but convey the hint that, by taking advantage of their opposing tendencies, we may yet compel them—the germs of fermentation and putrefaction—to play the *rôle* of antiseptics.

The first set of observations to which I refer are those of Rietsch.[1] In this investigation cultures of the microörganisms of cholera asiatica, of typhus, and of the staphylococcus aureus in 2.5 per cent. peptone solution, were precipitated with alcohol. The precipitate was separated by filtration, washed repeatedly and dried, and the powder thus obtained was tested with reference to its power of digesting albumin. The result was that neither the tubercle nor the typhus bacilli were capable of digesting fibrin, either in alkaline or neutral solution. On the other hand, the cholera bacillus and the staphylococcus aureus, in neutral solution, digested fibrin and the resulting fluid gave the reaction of peptone. In weak alkaline solution the fibrin was also attacked, and in neutralizing with HCl, a precipitate took place which gave the reactions of syntonin and globulin. The digestive capacity of these bacteria, thus demonstrated, had already been suspected on account of the liquefaction of the gelatine in which they are sometimes cultivated.

The second set of observations are those of Hirschler,[2] who found that in mixtures of albuminoids and carbohydrates, the bacteria which first develop are invariably those that decompose the latter. For example, in milk, notwithstanding the presence of numerous casein-decomposing bacteria, the acid fer-

[1] See paper by Dr. Edward Martin, in Journal American Medical Association, 1888.

[1] Contribution à l'étude des ferments digestifs sécrétés par les bactéries. Journal de Pharmacie et de Chemie, 1887, 1 Juillet.

[2] Quoted by Escherich—Beiträge zur antiseptischen Behandlungsmethode der Magen-darmkrankheiten des Säuglingsalters. Jahrbuch für Kinderheilkunde, Bd. xxvii. Hefte 1 und 2, 1887.

mentation first sets in. In such cases the withdrawal of carbohydrates and the substitution of a purely albuminoid diet is indicated. On the other hand, in cases of putrefaction of albuminoids, with offensive stools, all proteids are to be temporarily withdrawn and carbohydrates substituted. The acid fermentation of the latter is the result of bacteria which are inimical to those causing the horribly offensive stools. These most suggestive facts lead directly to the belief that the time is not far distant when what we now somewhat vaguely speak of as a well-regulated diet will be one selected not exclusively with reference to the nice adjustment of its proteids and carbohydrates, but also with a view to the mutual relations of the minute organisms which subsequently develop within it.

SUBGLOTTIC LARYNGEAL TUMOR.[1]

By E. FLETCHER INGALS, M.D.,
of Chicago.

Cartilaginous tumors of the larynx are so rare that I believe the report of a case which, although at present incomplete, seems in a fair way to be cured by endolaryngeal treatment, will be of general interest.

At the New York meeting of the American Laryngological Association in 1884, Dr. Morris J. Asch[2] presented the history of a case of laryngeal ecchondrosis together with a *résumé* of the literature of the subject. He cites eight cases besides his own, only two of which were accurately diagnosticated and treated during the patient's lifetime, and only one of these had been treated by endolaryngeal methods.

By consulting the library of the Surgeon-General's Office at Washington I have been unable to find records of any other cases excepting one of immense fibro-enchondroma of the hyoid bone and larynx which was skilfully removed by Dr. Azzio Caselli[3] twenty-four hours before the patient's death. This, however, should hardly be included with laryngeal growths, although at first it seemed to spring from the outer surface of the thyroid cartilage.

Dr. Asch's case, in which the tumor grew from the upper part of the thyroid cartilage, and Stoerk's case, in which it occupied a site at the base of the left arytenoid and vocal process, are the only ones that have been successfully treated by endolaryngeal means. Virchow says[4] that from the thickness and hardness of these tumors "they cannot be removed *per vias naturales*."

In the case which I have to report the tumor was seated below the glottis, and although a cure has not been effected, four applications, made at intervals of from four to six weeks or more, caused a diminution from its largest dimensions (about the size of a split cherry) to one-tenth of that size, and I feel confident that from two or three more applications it would have been entirely destroyed; therefore I feel justified in recommending a careful trial of the treatment in similar cases. The history is as follows:

Mr. X., æt. twenty-four, commercial traveller, came to me July 24, 1886, complaining of almost constant hoarseness which dated from exposure in a tornado about a year previously. His general health was perfect and there was *positive evidence of no specific taint.* The vocal cords were slightly congested, and at about the middle of the left cord there was a small conical outgrowth about three millimetres in diameter. In the subglottic region just below the anterior commissure I found a small, yellowish, somewhat conical tumor, measuring, as nearly as I could estimate, four millimetres in thickness at its highest part and six or seven millimetres across its base. Its surface was smooth but slightly nodular, and its base occupied partly the inner surface of the thyroid cartilage and partly the inner surface of the crico-thyroid membrane. Other portions of the larynx were normal.

A solution of sulphate of zinc was applied by spray to the larynx and an astringent spray was ordered for daily use by the patient. This was continued for about four weeks, when I again saw the patient. There had been little or no improvement.

At that time, as a forlorn hope, I directed iodide of potassium to be taken in doses of from five to fifteen grains three times a day. I saw the patient only twice during the next month, and made no further local applications. He continued to take the iodide of potassium in doses ranging from ten to twenty grains t. i. d. for eight months, but during the last six weeks previous to his fifth visit to my office in July 15, 1887, he had taken no medicine and had not used the spray. The cartilaginous tumor had increased in size so that, as near as I could estimate, it was six millimetres in thickness and fully a centimetre in diameter at its base. The outgrowth had disappeared from the vocal cords and the congestion had subsided.

At this visit, now fourteen months ago, I decided to suspend all other treatment and try the effects of cauterization with chromic acid. I anæsthetized the larynx with a ten per cent. spray of cocaine and then applied the caustic accurately to the whole surface of the tumor until it appeared of a uniform brownish-yellow color. This I succeeded in doing, without touching surrounding parts, though shortly afterward I found that the diffusion of the acid had tinged the anterior half of the vocal cords of a yellowish color.

Six days later I found the larynx highly congested and I then applied a spray of a thirty-grain solution of sulphate of zinc. I did not see the patient again until the end of a month, when I found the tumor materially reduced in size. I again applied the caustic in the same manner.

He returned again at the end of two months,

[1] Read at the American Laryngological Association, in Washington, September, 1888.

[2] Trans. Amer. Laryngological Association, 1884, p. 66.

[3] Ann Univ. di. Med. e chir., 1880, cclii. pp. 504–516.

[4] Virchow, Path. des tumeurs, vol. i p. 442.

when I find from my notes that his voice was perfect and as a result of two applications of chromic acid the growth had diminished to two-fifths of its former size. Owing to the patient's business engagements the tumor was not cauterized at this time, but two months later, December 22, 1887, I cauterized it again, and again two months later I repeated the treatment. One month later, March 15, 1888, I found the tumor diminished to about one-tenth of its former size. On this date I made the sixth cauterization.

I did not see the patient again until the 7th of August, about five months, when the tumor appeared to me somewhat larger than at the last treatment, or about one-fifth of its largest size. I again cauterized it with chromic acid. I saw the patient once more at the end of a month and found that the growth had been reduced about one-half by the last application. He was usually hoarse for three or four days after each treatment, therefore, because of his business engagements, further treatment was postponed until the end of September.

Dr. J. E. Rhodes, who has seen this case with me two or three times, concurs in my belief that the treatment would speedily eradicate the growth if two or three applications could be made at intervals of three or four weeks. I expect to follow this course the present fall and hope to be able to report a perfect cure.

In making the applications of chromic acid I used an aluminium wire on the end of which a small amount of the acid was fused. Over this wire I slipped a section of small rubber tubing which had been cut away at its lower end to expose the acid in front. The section of tubing was made secure by tying it with a silk thread, which was extended along the wire to the handle so that there could be no possible chance of its dropping off. This I have found the simplest and most convenient instrument for applying caustics to the larynx. The rubber tubing protects the surrounding parts better than any other device I have seen. The instrument is simple, it may be bent in any direction, it is easily cleaned, and it does not get out of order.

70 State St., Chicago.

HEART WITH THREE CAVITIES.

Partial Transposition of Abdominal Viscera.[1]

By M. HOWARD FUSSELL, M.D.,
of Manayunk, Philadelphia.

Louisa D., aged twenty-one months. Parents healthy; had one other child, which died of summer complaint, aged two months. Louisa was born September, 1886, after a very easy labor, weighed about five pounds, and was apparently perfectly healthy. No cyanosis except that common to infants immediately after birth. It nursed and rested well, and I left it at the end of two weeks, having no idea of its serious malformation.

At the age of three months the child was brought to me, with the statement that she continually "grunted," giving the impression to those around that her clothing was too tight. Her appearance was quite normal. On examination the "grunt" was found to resemble closely the expiratory moan of pneumonia. Respirations not markedly accelerated; pulse regular and not over-rapid. On auscultation an exceedingly loud double blowing murmur was heard, with greatest intensity in the mitral region, but conducted equally over the entire area of both chests. The heart was not markedly hypertrophied. It was impossible to decide whether the murmur had its origin at the tricuspid or mitral valves. There was no cyanosis and no œdema.

Thinking the moan came possibly from the overburdened heart, the little patient was put on half drop doses of tincture of digitalis, with the result of stopping the moan for several months.

During the spring and summer following the patient had many attacks of bronchitis and diarrhœa, but she grew fairly well and cut the usual number of teeth at the proper periods. She walked at twelve months. It was noticed now, however, that she began to fail in strength, and though she would take nothing but the breast it was thought best to wean her, and now began the real trouble. It was only by forcing that she would take milk, and she would eat nothing but sugar, clear starch, and dirt. She would eat ordinary starch by the handful, and whenever she could get near any earth eat it as so much sugar, and would cry lustily whenever she was taken away from the dirt. Gradually she ceased to walk, and finally would not stand alone. She was tempted by every imaginable thing, but would eat absolutely nothing but milk, sugar, starch, and dirt.

On December 12, 1887, I was called to see her on account of a bad cough. This at first promised to be one of her frequent attacks of bronchitis. However, her temperature rose to 103° F., pulse 160, regular, and respirations 80 per minute. Consolidation of right base developed. There was characteristic blowing breathing over the whole lower right lobe. The child had pneumonia, and, contrary to my faintest hope, made a good recovery and appeared better than she had for a year; she even began to walk a little, and lost her desire for dirt and would eat very slightly of cracker, but still clung to her milk, sugar, and starch. Her heart had gradually grown. After her attack of pneumonia I find the following note: Præcardia bulging, apex beat beyond the nipple line; dulness from mid-sternum to beyond the nipple line. A loud double murmur over the whole chest. Liver dulness extends below the umbilical line.

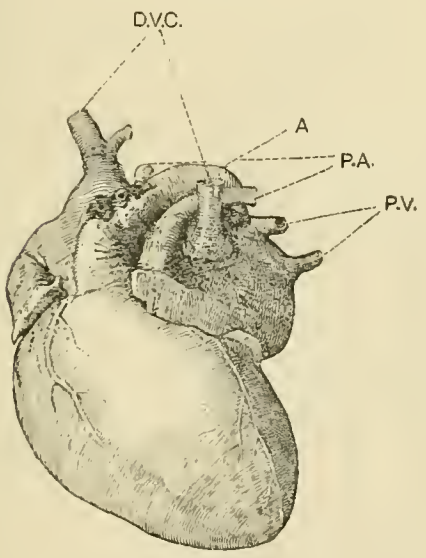
[1] Read before the Pathological Society of Philadelphia.

The patient did well until the beginning of May of the present year, when I was called, and found her propped up, the subject of orthopnœa, countenance livid, finger-nails extremely blue, heart's action irregular, breathing labored and irregular, chest full of mucous râles, no œdema of the extremities. The child was the picture of one suffering from heart failure. I thought the end had certainly come; but under a free use of digitalis and nitroglycerine she became quite comfortable, and the cyanosis disappeared almost entirely for nearly two weeks, at the end of which time the right hand and foot began to swell gradually, general anasarca took place, and the patient gradually failed, dying with extreme suffering on June 18th.

Post-mortem thirty-six hours after death. Dr. George Dock, of Philadelphia, kindly made the section. The child was small for the age of twenty-one months. There was œdema of the extremities and face, and the belly protruded by what proved to be ascitic fluid.

Heart.—On opening the chest the heart was seen occupying almost the entire anterior portion of the chest. The auricle was greatly distended. The

Fig. 1.



Anterior view of heart.

D. V. C. Descending vena cava (innominate veins).
A. Aorta.
P. A. Pulmonary artery.
P. V. Pulmonary veins.

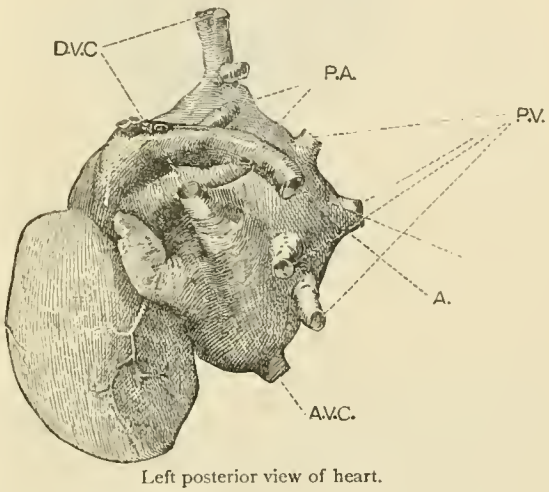
ascending vena cava passed up on the left side of the spinal column and apparently entered the left auricle. After noting the anomaly, the heart and lungs were removed entire and dissected at leisure.

The entire heart was much hypertrophied. The auricles and right heart were in a state of extreme distention, giving a typical picture of heart failure. While in this distended condition the auricular portion was seen to be of much greater size than the ventricular portion, at least half as large again (Fig. 2). The right ventricular portion was much more developed than the left, the right ventricle evidently forming the apex (Fig. 1).

The aorta arose to the right of the pulmonary artery; the ascending and transverse portion of the arch was dilated to at least twice its original size (Fig. 1). The ascending vena cava entered the auricular cavity far to the left and posteriorly. The descending vena cava was absent, its place being supplied by the two innominate veins, the right entering about the position of the superior cava, the left entering the left auricular portion in the anterior part (Fig. 1).

The pulmonary veins were normal in position and number.

Fig. 2.



Left posterior view of heart.

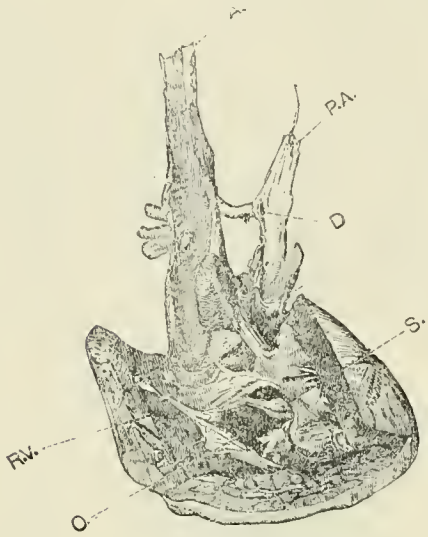
D. V. C. Descending vena cava (innominate veins).
P. A. Pulmonary artery.
P. V. Pulmonary veins.
A. Aorta.
A. V. C. Ascending vena cava.

The heart was opened by making an incision in the pulmonary artery and following that vessel into the right ventricle. The wall of the ventricle was half an inch thick and filled with a moderately firm clot. Its cavity had three outlets, viz.: the aorta, the pulmonary artery, and the auriculo-ventricular orifice. The pulmonary orifice lay close to the septum to the left of the aorta, and was guarded by two healthy semilunar valves. It was much contracted by thickening of the ring, was of triangular shape, and of about the calibre of a crow-quill (Fig. 3).

The aortic orifice was to the right of the pulmonary and would easily admit the tip of the little finger—it was protected by three valves (Fig. 3). The auriculo-ventricular orifice was placed posteriorly to the above two. It admitted the tips of three

fingers. The valves protecting this orifice were evidently incompetent. The right half of the ring was protected by a large valve, which was attached to the apex by a papillary muscle. Posteriorly, and joined

Fig. 3.



Interior of right ventricle.

A. Aorta.
P. A. Pulmonary artery.
D. Ductus arteriosus.
S. Edge of septum.
O. Auriculo-ventricular orifice.
R. V. Right ventricle.

to the posterior edge of the above valve, is a nodular formation, evidently an attempt at a second valve. The remaining portion of the ring was perfectly smooth and free from any valvular attachment. It is formed by the free upper edge of the ventricular septum. From this portion of the ring a muscular band three-eighths of an inch wide runs to the septum.

The free edge of the large valve was the seat of nodular thickenings. The ventricular septum was imperfect, connecting with the left ventricle by means of a small semilunar opening at the upper edge. The septum was about one-fourth of an inch thick. The left ventricle was abortive, its cavity holding scarcely more than a drachm. Its walls were about half the thickness of those of the right ventricle. There was no vessel given off from this cavity, the only openings being the auriculo-ventricular and the small opening into the right ventricle. The auriculo-ventricular opening admitted the index finger; the anterior portion was free from valvular attachment and was formed by the free edge of the ventricular septum in common with the free portion of the ring on the other side. The remainder of the orifice was protected by a valve having its anterior attachment at a point in common with the anterior attachment of the valve on the right side and the posterior attachment in common with the abortive valve on the left; it was attached to the walls by chordæ running to the papillary muscles, one on the anterior, the other on the posterior wall.

Another and perhaps the proper description is, that there is but *one* auriculo-ventricular orifice which is common to the right and left ventricles, and protected by valves as described above, the two ventricles communicating by a small semilunar opening in the upper part of the septum.

On opening the auricular portion, the septum was found wanting, and there was no trace of foramen or valve. The walls of the cavity were one-eighth of an inch thick. The capacity was sixty c. c. There were two complete auricular appendages. The common auriculo-ventricular orifice was well seen at the bottom of this cavity.

The ductus arteriosus arose from the left pulmonary artery and was patulous.

Lungs.—Right not fully divided into its three lobes, and there was an attempt at a fourth lobe. Left, the entire lower lobe was consolidated apparently by an infarct, but no embolus was found.

The *liver* was a typical nutmeg, almost round, of monstrous size, occupying half the abdominal cavity, exceedingly hard.

The *œsophagus* passed to the right of the spinal column, entering the cardiac end of the stomach in the right hypochondriac region.

The *spleen* consisted of three distinct portions curiously nodulated with an attempt at a fourth division. It lay attached to the stomach in the right hypochondrium.

The *stomach* was entirely on the right side under the right lobe of the liver, the pylorus lying in an almost normal position, but pointing forward, and the cardiac end lay along the column posteriorly on the right side. The duodenum ran anteriorly.

Pancreas short and round, with the head pointing anteriorly; duct presumably opening into the ductus, commences about one inch from the pylorus.

Cæcum lay in right iliac region, but was anterior.

Colon ran half way up on right side, crossed the column, and lay in folds in the right iliac region.

The *kidneys* were cyanotic.

This is the fourth specimen of malformed heart presented to the Philadelphia Pathological Society, and the third of its class. The first was presented by Dr. Darrach, in 1858, and is reported in vol. i. of the *Transactions*. Save that the orifice of the pulmonary artery was entirely obliterated, it was a counterpart of this specimen. Dr. Rex presented a malformation in 1874, vol. v., which was doubtless of the same class, but the aorta was connected with both the right and left ventricles. Dr. Eskridge presented a specimen in 1883, but the malformation was almost exclusively in the right side, being an

abnormal septum in the right auricle, the openings and vessels being normal.

Practically, the heart which I have described consists of two cavities, only the one ventricle and one auricle taking any active part in the circulation.

However, I think it must be classed with that more common form of malformations in which there is an attempt at the four cavities, arrest of development taking place at a later period of development.

When the arrest of development takes place very early there are only two cavities or perhaps three, but almost universally there is but *one* vessel leading off from the common ventricle, arrest having taken place before the division of the primary artery.

In the class of which I think this forms one, there are two arteries, two auricular appendages, with a more or less complete formation of the septa of auricles and ventricles. The orifice of the pulmonary artery is always more or less contracted, sometimes, as in Darrach's case, entirely obliterated. The aorta may arise to the right of the pulmonary artery, as in this case, and always has connection with both ventricles, the septum ventriculorum being deflected usually to the left. Hunter supposed these defects were caused by some obstruction occurring in the pulmonary artery in early fœtal life, while the septum of the ventricle is incomplete, necessitating a flow of blood into the left ventricle, preventing a separation of the two ventricles, causing a deflection of the septum to the left and a dragging of the aorta to the right.

Meckel concludes that incompleteness and deflection of the septum are primitive defects, the blood finding a free outlet from the right ventricle through the aorta; the pulmonary artery becomes more or less abortive, and the orifice is contracted during the process of development.

Peacock believes that the defects are due partly to the arrest of development, by which the earlier position of the aorta is retained, and partly to obstruction of the pulmonary orifice and consequent distention of the right ventricle, causing the septum to be deflected to the left.

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SUCCESSFUL TREATMENT OF A CASE OF EXOPHTHALMIC GOITRE BY SULPHURIC ACID.

By WM. E. MAGRUDER, M.D.,
of Olney, Maryland.

Six years ago I had an obstinate case of exophthalmic goitre in a lady about twenty-two years of age. This case presented the usual symptoms of that disease, viz.: enlargement of the thyroid gland, with decided pulsation, protrusion of the eyeballs, palpitation of the heart, frequent pulse (120 to 140), anæmia, etc. I treated the case for more than two months with very little improvement in the condition of my patient, using the various remedies usually prescribed in that disease, such as digitalis, iron, quinine, aconite, strychnine, ergot, belladonna alone and in various combinations, and electricity, both galvanic and faradic. I then gave aromatic sulphuric acid in combination with digitalis and ergot, and found a decided improvement in a very short time. This combination, however, soon disagreed with her stomach, and I then gave the acid alone (20 gtt. every four hours), and the improvement continued.

After beginning the use of the acid, the pulse became less frequent, the pulsation soon ceased in the thyroid gland, and the enlargement gradually decreased, as did also the protrusion of the eyeballs. For about one year there was a tendency to a recurrence of the disease, but it always yielded promptly to the acid, and so marked was the relief afforded that the patient resorted to its use whenever she felt a return of the symptoms. She is now perfectly well.

I have never seen any mention of this treatment for this disease, and it may not act in another case as it did in the one reported above, but it is certainly worth a trial. I have had no other case since upon which to test the treatment, and therefore have hesitated about reporting it, but I hope others may try it and publish their results.

This treatment was suggested to my mind by reading in *Clinical Observations on Functional Nervous Disorders*, by C. Handfield Jones, the following remarks:

"Sulphuric and nitric acids have certainly some claim to be regarded as *toners of the vasomotor nerves*. They cannot be supposed, of course, to act in their original form on the parts they influence, as their quality must be lost the moment they enter the circulation. They cannot be mere astringents like tannin. When sulphuric acid restrains a choleraic purging, or colliquative sweating, these effects must surely be produced through the nerves that regulate the arteries of the internal and the external integument. Its special nervine action is attested by the following quotation from Dr. Pereira: 'No remedy is so successful in relieving the distressing itching, formication, and tingling of the skin as sulphuric acid taken internally.'"

Something to give tone to the vasomotor nerves seems to be indicated in this disease, and the sulphuric acid certainly seemed to have that effect in this case.

MEDICAL PROGRESS.

Tuberculosis in Children.—In an article on this disease in the *Archives of Pediatrics*, for Oct. 1888, Jacobi, with that characteristic clinical acumen which marks this teacher's utterances, deplores the present fashion of feigning contempt for internal remedies. He believes that arsenic is a remedy of great value. The doses must be small. A child a few years old may take two drops of Fowler's solution daily, or a fiftieth or a fortieth of a grain of

arsenious acid for weeks or months in succession. This amount may be divided in three doses, administered after meals, the solution largely diluted. There is no objection to combining it, according to necessity, with stimulants, roborants, or narcotics, and to giving it for an indefinite period, unless the well-known symptoms of an over-dose—gastric and intestinal irritation and local œdema—made their appearance. But they seldom will, particularly when small doses of opiates are judiciously added to them. In almost every case, perhaps in every one, it is desirable to administer it in conjunction with digitalis.

In the vertebrate animal, digitalis increases the energy of the heart-muscle and its contraction; thereby it increases arterial pressure and diminishes the frequency of the pulse. By increasing arterial pressure it favors the secretion of the kidneys, improves the pulmonary circulation, empties the veins, thereby accelerates the flow of lymph and the tissue fluids, and exerts a powerful influence on the metamorphosis of organic material—that is, general nutrition. Besides, what it does for the general circulation and nutrition it also accomplishes for the heart-muscle itself. The bloodvessels and lymph circulation of the latter are benefited equally with the rest.

Thus digitalis, while being called a cardiac stimulant, contributes largely to the permanent nutrition and development of the organ. This effect is not only of vital importance for the economy of the system on general principles, but an urgent necessity in view of the fact that there appears to be a relative undersize of the heart, either congenital or acquired, in cases of phthisis; and there is certainly such a predominance of the size of the pulmonary artery in the young, particularly over the aorta, that the normal succulence of the lung becomes pathological quite readily when the insufficiency of the heart-muscle tends to increase low arterial pressure within the distribution of the pulmonary. The selection of the preparation to be administered is not always an indifferent matter. The infusion and the tincture are not always well tolerated by the stomach; digitalis, not being a soluble alkaloid but a glucoside, is not always reliable in its effects, and not of equal consistency and strength; a good fluid extract is borne well and may be taken for a long time. A child a few years old may take about two minims of the former daily, more or less, for weeks and months, or its equivalent in the shape of the extract (two-thirds of a grain daily); the latter can easily be given in pills, to be taken in bread, or jelly, and combined with any medicines indicated for special purposes, such as narcotics, or nux, arsenic, or iron; the latter to be excluded in all feverish cases, or in all cases as long as there is fever. As long as there is no urgent necessity for a speedy effect, digitalis will suffice by itself; as a rule, it does not operate immediately in those small doses. The addition of strophanthus, sparteine, or caffeine, all of which are speedily absorbed and eliminated, and exhibit their effect rapidly and without the danger or inconvenience of cumulation, will prove advantageous in many cases.

Other medicines have been used in great numbers. Specifics have been recommended, and symptomatic treatment been resorted to. The success of the latter depends on the judgment of the individual practitioner. No text-book or essay can teach more than general principles and their adaptation to the average case, and the measures to be taken in a number of exceptional occurrences. The indications for the use of narcotics, stimulants, expectorants, and febrifuges will change according to the cases and their various phases and changes. In every case the necessity may arise for antipyrin, antifebrin, phenacetin, salicylate of sodium, or quinia. It may be necessary to decide the question whether the administration is to be made through the mouth, rectum, or subcutaneous tissue, or how their effects are to be corrected or combined. I have often found that a hectic fever would not be influenced by quinia, or by antipyrin, or salicylate of sodium. But the combination of the first with one of the latter would frequently have a happy effect.

Fissures of the Tongue.—These obstinate and painful lesions may be speedily cured, according to SCHWIMMER, by applying the following mixture five or six times daily:

R.—Papayotine . . . . 2 parts.
Glycerin,
Aquæ . . . . āā 10 parts.—M.
—*Revue de Thérapeutique*, Oct. 15, 1888.

Glycerine Suppositories.—Suppositories of glycerine may thus be made: Ten parts of particularly hard, dialyzed stearin soap are dissolved in hot water, the solution mixed with ninety parts of pure glycerine and passed through a steam filter; the filtrate, melted, is divided into one hundred parts and poured into moulds. The suppositories are firm and transparent; as they are hygroscopic, they should be incased in tin-foil. Two sizes may be prepared, one of about 26 grains, another of 38; the former should contain about 24, the latter about 36 minims of glycerine. Dietrich's idea to combine glycerine with soap is most happy and rational, as soap, which has long been used in suppository, is a vehicle which does not interfere with the action of glycerine, but aids it.—*Prager medicin. Wochenschr.*, September 19, 1888.

Hypodermatic Treatment of Syphilis.—VOLLERT, of Strasburg, brings forward the succinimide of mercury, given subcutaneously, as of much value in syphilis. It appears to have several advantages over mercury glycocoll, its solution being much more stable, and the injection being less painful, and causing a smaller amount of infiltration at the seat of puncture, besides which its cost is decidedly less. When properly applied, the injection rarely, if ever, sets up suppuration. According to Prof. Wolff, the best way of operating is to run the needle into the middle of the subcutaneous fat of the buttock, not perpendicularly to the surface, but parallel to it, then to inject the liquid very slowly, gently stroking the swelling formed, so as to distribute and disperse the liquid over a somewhat extensive area. The daily injections are made alternately into the right and left buttocks. The strength of the solution recommended by the author is 2 per cent., corresponding to about 1 per cent. of mercury, so that each Pravaz syringeful contains 0.01 gramme of mercury. The average number of injections given to each patient is about nineteen; in severe cases, however, thirty or thirty-five injections are required. Dr. Vollert has not as yet been able to make any observations on the excretion of mercury by the organism after the treatment;

but, speaking from the point of view of clinical experience, after having given 523 injections to twenty-eight patients, he considers mercury succinimide bids fair to prove a very valuable drug for subcutaneous injection in case of syphilitic disease.—*Lancet*, October 13, 1888.

Chemical Reactions of the Cholera Bacillus.—In 1886, Poehl first noticed that cholera bacilli produced a reaction with the mineral acids, which he designated "cholera red." In 1887, Bujwid independently published a similar observation in the *Zeitschrift für Hygiene*. Since then the latter has given the subject a good deal of attention, as at times it may be important for the physician in a given case not to have to make cultures of the bacilli from stools suspected to be choleraic, but to be able to recognize the bacillus by some chemical reaction which can be readily performed. Jadassohn (*Breslauer ärztliche Zeitschrift*), from his investigations, was unable to indicate which particular acid furnished a characteristic reaction with the cholera bacillus, as other microörganisms behaved similarly under like conditions. After careful studies, Bujwid describes a reaction for the cholera bacillus which he considers characteristic. To a two per cent. sterilized solution of peptone a half per cent. of common salt and bicarbonate of sodium is added to produce an alkaline reaction. This solution is contaminated with the bacillus and placed in the thermostat for twenty-four hours. If to the mass is now added hydrochloric, phosphoric, sulphuric, or oxalic acid a beautiful violet-red color results, prettiest with hydrochloric acid. Several other bacilli (Finkler's, Denecke's, Miller's) give the same reaction, but only after a longer time and in a less pronounced degree. Salkowski believes that the reaction is produced by the indol formed by the bacilli.—*Wiener medizin. Presse*, No. 40, 1888.

Emmenagogue Powder.—

℞.—Powdered absinthe . . gr. xxxviij.
Powdered yarrow . . gr. xxxviij.
Powdered saffron . . gr. xix.—M.

Divide in pulveres No. V.

Sig.—One powder each day, for five days preceding the expected menstrual period.

The Treatment of Lichen Ruber Planus.—Herxheimer (*Berl. klin. Wochenschr.*, No. 37) recommends applications, with a brush, of ten per cent. solutions of chrysarobin-traumaticin, twice weekly, until the eruption has disappeared.—*München. medicin. Wochenschr.*, September 25, 1888.

Terebene in Bronchorrhœa.—Martin has obtained in bronchorrhœa excellent results from terebene. He mentions one particularly aggravated case of long standing, in which it was given in a mixture containing ♏x of gum terebene, ♏x of spirits of chloroform, ʒj of mucilage of tragacanth, ʒss of syrup, water to ʒj. This proved most palatable to the patient. Four doses and sometimes five, were given in the course of twenty-four hours. The effect upon the bronchial secretion was immediate, and steadily maintained. The heart also seemed to respond to the stimulant nature of the drug, and its effect upon the atonic and flatulent condition of the bowels and stomach was remarkable. The tongue cleaned, the appetite increased, digestion became comfortable, with consequent increase in general strength. No nerve symptoms were noticed, as was the case when brandy or whiskey was given. From the day the terebene was ordered there was a steady improvement of a most marked character. —*Medical Press*, Aug. 29, 1888.

For Cough.—In certain cases of cough in which the paroxysms are frequent and expectoration difficult, the hydrochlorate of apomorphine is highly spoken of by Stocquart. Very minute doses are generally sufficient, only three or four milligrammes being given during the whole day. It is generally accepted, and cases of intolerance are very rare. When they do occur, they consist chiefly of colicky pains, nausea, and diarrhœa. As the solution of hydrochlorate of apomorphine is an unstable compound, he advises the addition of a few drops of chlorhydric acid, which will insure its preservation and not affect its therapeutical value.—*Journal de Médecine*, September, 1888.

The Constant Current in Epilepsy.—Dr. Niemeyer has obtained some successful results in epilepsy, by combining the employment of the constant current to the brain in combination with the internal use of small doses of bromide of potassium. The anode was moved about over the forehead, the cathode being held in the hand; or the anode was fixed on the nape of the neck, while the cathode was moved over the forehead, or applied immovably over the gyri centrales of both sides. The treatment was carried out for ten months, the result being that one patient had no attack for two years and three months; another, who had previously had an attack about every month, had, after treatment, only two fits in twenty-five months; and a third patient, who had been in the habit of having three or four fits a day, remained free for seven weeks.—*Lancet*, October 13, 1888.

Antiseptic Sponges for Gynecological Operations.—The sponges are kept in the following solution for twenty-four hours:

℞.—Hydrarg. chlorid. corrosiv. . 1 part.
Acid. carbolic. . . . 5 parts.
Alcohol. . . . . 60 "
Aquæ bull. . . . . 500 " —M.

The fluid is then expressed and the sponges dried in the air. After they have been thus disinfected, the sponges may be impregnated with one of the following solutions:

℞.—Acid. boric. . . . . 15 parts.
Aquæ bull. . . . . 500 " —M.

Or

℞.—Acid. tannic. . . . . 30 parts.
Aquæ bull. . . . . 500 " —M.

Or

℞.—Liq. ferri chlorid. . . . 40 parts.
Aquæ bull. . . . . 500 " —M.

—*Medicin. Chirurg. Rundschau*, Oct. 1; from *Wiener med. Wochenschr.*, No. 32, 1888 (*Journ. de Méd.*, July 29, 1888).

Treatment of Intra-cranial Abscess. — CHAUVEL advises early operation, since by the use of antiseptics the dangers are trifling. The symptoms, at best, are exceedingly obscure, but if one has reason to suspect suppuration no time should be lost. The most common seat is in the temporo-sphenoidal lobe, and if treatment directed to the ear alone has failed and the cerebral symptoms are alarming, trephine the mastoid and wait a few days. If no amelioration occurs, the cavity of the cranium is to be opened. The landmarks of the operation are as follows: A horizontal line drawn backward from the external canthus, crossed by two vertical lines drawn one in front and one behind the pinna. The point for opening is to be selected on the horizontal line, midway between the two perpendicular lines. One comes here directly on the squamous portion of the temporal bone, and the only large vessel to avoid is the middle meningeal artery. The abscess is then evacuated and antiseptic rules strictly observed.—*L'Union Médicale*, October 11, 1888.

Tobacco and Bacteria.—The popular belief in the germicidal virtues of tobacco-smoke (which we note as being revived in connection with the alleged immunity enjoyed by the cigar-makers of Florida during the recent yellow fever epidemic) has received some confirmation in the scientific researches of Dr. Vincenzo Tassinari, first assistant of the Hygienic Institute of Pisa University.

In a preliminary note on his experiments (*Centralblatt f. Bakteriologie*, Bd. iv., No. 15), he describes the simple apparatus he designed to test the effect on pathogenic organisms of exposure to the fumes of tobacco. The apparatus consists in a chamber formed by two glass funnels placed horizontally, and connected together at their mouths by paraffin. In this chamber is suspended from a loop of platinum a small piece of linen, with the threads of its lower extremity immersed in a culture-fluid containing the microbes. The chamber is connected at one end by a tube with a cigar or cigarette, and at the other, by a tube containing a plug of cotton-wool (to serve as a filter) with the mouth of the experimenter. The smoke as it is exhaled, therefore, thoroughly surrounds the linen soaked in the culture-fluid, and, after the experiment, which lasts from thirty to thirty-five minutes, involving the consumption of from three and a half to four and a half grammes of tobacco, the chamber is opened, and the linen allowed to fall into a test-tube containing fluid gelatine. Control experiments were also, of course, made.

The microörganisms subjected to this treatment included: 1. Spirillum choleræ Asiaticæ. 2. Spirillum Finkler-Prior. 3. Bacillus anthracis. 4. Bacillus typhoabdominalis. 5. Bacillus pneumoniæ (Friedländer). 6. Staphylococcus pyogenes aureus. 7. Bacillus prodigiosus. The result varied with the variety of tobacco and the kind of microbe, but in every instance there was marked (sometimes very great) delay in the development of colonies in the gelatine as compared with that of organisms dealt with similarly, but without exposure to tobacco-smoke. Indeed, the development of some was entirely prevented. For example, in the third series of experiments cited, in which large Virginia cigars were used, the development of bacillus prodigiosus was delayed for seventy-two hours, that of staphylococcus pyogenes aureus for seventy-three hours, of bacillus anthracis for ninety-seven hours; whilst of the others, mentioned above, no development of colonies took place after from a hundred and twenty-eight to a hundred and sixty-eight hours.

Dr. Tassinari attributes these results to the chemical action of the ingredients of tobacco-smoke. He proposes to extend his researches more fully, both as regards the effect of different kinds of tobacco upon these and other microörganisms, especially the tubercle bacillus, and to determine the time of exposure, as well as the amount of tobacco necessary to produce the full effect. He hopes also to ascertain what substance or substances are responsible for the germicidal action.—*Lancet*, October 13, 1888.

Treatment of Diphtheria.—The three rules to be followed for the successful treatment of diphtheria are, according to RENOU:

To saturate the inspired air with antiseptics.

To feed and tone the patient to the greatest possible degree.

Never to touch the throat with any medicament, and to give internally only alcohol and quinine.

The facility with which this treatment may be applied, especially in the case of children, the certainty and rapidity of absorption, are elements which recommend a thorough trial.—*Bulletin Général de Thèrapeutique*, October 15, 1888.

The Use of Creolin in Ophthalmic Practice.—GRUNHUT (*Prager medicin. Wochenschr.*, September 26, 1888), using creolin for a period of four months, did not observe the good results which have been claimed for its employment in ophthalmic practice. He used an emulsion of one per cent. and a vaseline ointment of one per cent. The remedy has the disadvantage of causing a burning sensation, lasting generally but a few minutes, though in some cases longer, associated with such severe pain and protracted irritation as, in some cases, to necessitate a liberal use of cocaine. The cheapness of creolin is thus offset by the high price of cocaine. The emulsion must be used fresh, as in the course of a few days the creolin separates as oily particles and the activity of the preparation is impaired. It is conceded that creolin possesses antiseptic properties and diminishes secretion in catarrhal affections of the conjunctiva, in trachoma and dacryocystitis. In the form of an ointment, rubbed once or twice a day on the lids, creolin exerts a useful influence in various forms of blepharitis, especially in the secretory and excoriative forms, though it cannot be said that it possesses any advantage over the ointment of the yellow oxide of mercury. In simple catarrh, even with swelling, better and speedier results may be had from nitrate of silver. Creolin would only be preferred when it was desired to substitute another remedy for silver nitrate. The excellent results claimed by Purtscher and Grossmann in the papillary form of trachoma were not confirmed; nor could more be said of pannus trachomatosus. In cases of keratitis threatening iritis, creolin was not well borne, on account of its irritating influence. Creolin thus plays but a minor *rôle* in ocular therapeutics. Its opacity renders it unavailable for operations upon the eye.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, NOVEMBER 3, 1888.

CALOMEL IN PHTHISIS.

THE observation is somewhat trite that in therapeutics empirical measures of recognized value are, with widening knowledge, often found to have a scientific basis. The present generation of physicians has as little personal knowledge of the indiscriminate use of calomel as of indiscriminate bleeding, and it is fortunate that this is so. This generation, however, knows that there are occasions in which prompt and free phlebotomy means the saving of a life, and, therefore, still carries the thumb lancet in its pocket-case. Not less does the doctor of to-day recognize in calomel, rightly used, an important remedy in certain of the acute infectious diseases. At the same time, its dangers and its uselessness, as once employed, are too well known to permit of anything like a revival of the old methods of prescribing it.

The use of calomel in pulmonary phthisis was common in the early part of the present century. Many authors regarded it as almost a specific remedy in this affection. Among these may be named Delafield (1818), Dessault (1809), Mecker (1822), Chricton (1823), Clark (1836), and others. Trousseau considered calomel useful in laryngeal phthisis where there was no underlying syphilitic cachexia, and where other remedies had failed. Broussais, Andral, and others advised the use of quicksilver in certain forms and at various periods of consumption. Hufeland considered quicksilver as much of a specific in scrofulosis as in syphilis.

For a half century the use of mercurials in phthisis seems to have been forgotten. Recently, however, the attention of the profession has been very generally drawn to the anti-parasitic action of the preparations of mercury in the treatment of bacillary phthisis. Auber and Gougenheim (1886) injected corrosive sublimate into lung cavities: Lepine used the same treatment in croupous pneumonia: Barthal and Moritz used mercurial inunctions in pneumonia; Kubassof employed this treatment in the management of consumption as first advised by Plasse. Plasse's work is especially noteworthy as resting, to a certain extent, upon experimental research. He found upon inoculating rabbits with tuberculous matter, that those animals previously treated by mercurial inunctions developed very few tubercles, or escaped altogether. The favorable influence of small doses of calomel upon certain forms of anæmia is well known. Cases are occasionally observed in which the prolonged administration of iron having failed, rapid improvement takes place under a treatment of calomel, with improvement of appetite, relief of habitual constipation, and restoration of the menstrual function. Especially is this method of treatment useful in the anæmia of syphilis, as pointed out by Keyes, and in the anæmia of "scrofulosis" and pulmonary consumption.

Quite recently MARTELL (*Prag. med. Wochenschr.*, No. 25, 1888), and DOCHMANN (*Therapeut. Monatsh.*, September, 1888), have published communications on the important subject of the calomel treatment of tuberculosis. J. C. WILSON, at about the same time, reported some clinical studies in the treatment of enteric fever and pulmonary phthisis by hypodermatic injections of calomel at the recent meeting of the Association of American Physicians in Washington (THE MEDICAL NEWS, October 13, 1888).

That calomel administered by the mouth or hypodermatically exerts a favorable influence in certain cases of tuberculous disease, there is no room to doubt. Whether it exerts a specific action upon the local pulmonary lesions, or upon the growth and development of the tubercle bacilli, cannot at present be asserted. With the exception of Wilson, those observers who have published their investigations into this method of treatment since its recent revival, incline to the view that the favorable in-

fluence of calomel is due to the direct germicide action of the mercurial salts. Dr. Wilson regards it as probable that the mercurial salts, even in small amounts, act upon the tissues rather than upon the germs themselves, and suggests that this action is preventive, tending to retard or prevent the splitting up of the complex chemical compounds of the tissues and the production of ptomaines, and that this increased resistance on the part of the tissues, by opposing processes necessary to the growth and multiplication of pathogenic microörganisms, stands in the way of their continuous development. Whether the mercurial salts, administered by the mouth or hypodermatically, enter the circulation in the form of an albuminate of mercury, or in the form of a double chloride of mercury and sodium, has not yet been established. Torsellini (1886) has shown that pepsin in the presence of small amounts of hydrochloric acid greatly increases the solubility of calomel, without converting it into mercuric chloride, and concludes that the solution is the result of a ferment action of pepsin upon the calomel.

THE TREATMENT OF FATTY HEART.

Dr. Forchheimer's paper on "Fatty Heart," and the discussion to which it gave rise, at the recent meeting of the Association of American Physicians, at Washington (The Medical News, October 6, 1888), brought into strong prominence the importance of the clinical distinction between fatty infiltrations of the heart and fatty degenerations of that organ. The pathological distinction is, as a rule, clear enough. The one is a fat overgrowth in the sub-pericardial connective tissue, in the grooves and furrows of the surface of the heart, and in the fibrous septa of the myocardium. When such overgrowth of fat becomes excessive, its presence interferes with the contraction of muscular fibres, and, consequently, with the nutrition of the heart, the force of which becomes impaired by atrophy of some groups of fibres, and secondary fatty degeneration of others.

Fatty infiltration is due to the causes which produce general obesity, and is associated with that condition. Dr. Forchheimer's expression, "obesity of the heart," well describes it.

On the other hand, fatty degeneration of the heart is a disease of the myocardium. The albuminoid constituents of the muscular fibre are split up, and microscopical particles of fat are deposited in their place. This condition may be caused by any of the numberless agencies, both constitutional and local, which seriously derange the nutrition of muscular tissue, and is only exceptionally associated, as, for example, in chlorosis, with general obesity. Where fatty degeneration is due to local disturbances of blood supply, as in obliterating endarteritis of a branch of the coronary arteries, the fatty change is usually of limited distribution, and since the unaffected parts of the wall of the cavity retain their normal contractile power, there is danger of the softened spot of degenerated tissue yielding upon stress, and rupture taking place—an accident which is, in point of fact, far from rare.

While the pathological pictures of these two conditions merely touch at their borders, or at most only slightly overlap; their clinical pictures, which alike represent cardiac inadequacy without positive physical signs, are superimposed. The differential diagnosis must, therefore, rest upon the constitutional rather than the cardiac morbid phenomena. The presence of general obesity—and the recognition of the conditions of life favoring fat accumulation will, in the absence of the evidences of the constitutional or local causes of derangement of nutrition, often justify the diagnosis of fatty infiltration; the reverse, that of fatty degeneration.

The diagnosis is, at present, of the highest importance in view of the growing interest and widening use of the dietetic-mechanical method of treating chronic diseases of the heart devised by Oertel, of Munich. While it may be admitted that certain cases of fatty degeneration, such as result from anæmia, chlorosis, or the acute infectious diseases, may be cautiously subjected to this treatment, and that some of them are likely to receive permanent benefit from it; it is obvious that a large majority of such cases, and especially those occurring in the degenerative period of life, are not only unlikely to be benefited by it, save in the most general way, but are also liable to disastrous consequences. On the other hand, the method of Oertel, which is essentially his method of treating obesity, is the method of choice in fatty infiltration. Whatever may be the result of experience in its use in other forms of heart disease; whatever the outcome of the assaults now being made upon it on both sides of the Rhine, we may confidently predict that the combination of a guarded restriction of fluids, a diminished dietary, from which fats and excess of carbo-hydrates are excluded, and carefully regulated and graduated hill-climbing under well-thought-out rules, to which

the name of the famed professor of Munich has been given, will constitute a permanent acquisition to our treatment of obesity of the heart as of the obesity of the body of which it is a part. The difficulties of diagnosis will always demand extreme caution in advising the use of this method in doubtful cases.

THE TREATMENT OF PELVIC ABSCESS IN WOMEN.

Among the topics of practical interest discussed at the Congress of American Physicians, the treatment of pelvic abscess in women elicited information of value not only to the obstetrician and gynecologist, but to the general practitioner.

Regarding the etiology of the affection, septic and non-septic causes were recognized. The former commonly arise during parturition, and are a part of puerperal infection; less frequently the gonococcus originates the septic process. The latter are the secondary causes of inflammation of the female genitalia, exposure to cold, and derangement of menstruation. The original focus of inflammation is very commonly the epithelial tissue of the endometrium and tubes, less frequently, the connective tissue of the pelvis. The determination of the time when suppuration occurs is difficult; persistence of the phenomena generally recognized as denoting pus formation for several weeks justifies an operative exploration. The extension of the process may involve the septa and connective tissue of the pelvis very extensively, and spontaneous evacuation may follow, in the direction of least resistance.

Regarding treatment, palliation is rarely successful, except in cases of non-septic origin. The destruction of the focus of infection should be attempted as early as possible, before pelvic tissues are generally involved. In the absence of a fluctuating tumor accessible per vaginam, laparotomy is indicated. Should the abscess be found in a tube, extirpation should be done. If an ill-defined abscess is found, it should be drained with gravity, per vaginam, a tube being generally passed into Douglas's cul-de-sac. Extirpation of the sac of an ill-defined abscess is rarely possible, but is effected by natural processes when drainage is established. If vaginal examination discloses a fluctuating tumor, it should be opened, preferably by uterine dressing-forceps whose tips are sharpened, or by a director. A flexible rubber drain, and antiseptic irrigation will complete the cure.

Piercing the pelvic tissues with an aspirator needle is injurious, and inefficient for diagnosis; aseptic laparotomy is more certain, and safer.

In cases recognized promptly, and treated efficiently, the prognosis is good, not only for recovery, but as regards the reproductive functions of the patient. Should an abscess be diagnosticated, after laparotomy, in the extra-peritoneal tissues, it may be evacuated advantageously by incision parallel to Poupart's ligament.

The American Public Health Association will convene at Milwaukee, Wisconsin, Tuesday, November 20, at 10 o'clock A. M., and continue four days. The meetings will be held in the Atheneum Hall.

The following topics have been selected for consideration:

1. The pollution of water-supplies. 2. The disposal of refuse matter of cities. 3. Animal diseases dangerous to man. 4. Maritime quarantine, and regulations for the control of contagious and infectious diseases, and their mutual relations.

Precedence will be given papers upon the above subjects, although other papers of a sanitary nature will be received by the committee. The topics given indicate the subjects which it is desired to consider, yet they are not to be regarded as the exclusive topics of the meeting. Papers of ability and practical application upon any subject connected with the public health interests will be received.

The possibility of the importation of yellow fever from South America is illustrated by a recent case at Brooklyn. The captain of a steamer from Para died last week of the fever at St. John's Hospital in that city. It would appear that the captain was the only person who went ashore at Para, and he sickened as he drew near to the harbor of New York. He alone was on the sick-list while passing through quarantine. He was so feeble that he could not stand erect while the customary examination by the port-official was in progress; he sat in his chair while talking with that officer. After his death, the steamer was ordered back to quarantine, and the crew, which had been discharged and dispersed, were found and returned to the same place for observation. The opinion of the medical attendants of the case, confirmed by an autopsy, is that it was a clear case of *vomito*. The health officer of the port has expressed doubt as to the correctness of the diagnosis of the fever in this captain's case, stating that there is no evidence that yellow fever has existed at Para.

We are in receipt of the English edition of Sir Morell Mackenzie's account of "The Fatal Illness of Frederick the Noble." It is a duodecimo volume of 246 pages, and is illustrated by drawings showing, among other things, the appearance of the vocal cords before and after operation, the different canulæ used, with their position *in situ*, and von Bergmann's alleged "false passage" and the resulting abscess. In his preface Sir Morell complains, with reason, that he has been refused access to the documents deposited in the State Archives bearing on the late Emperor's case, which had been granted the German physicians, and which include "the written refusal of the Emperor (then Crown Prince) to submit to any other external operation than tracheotomy."

Mr. Edgar S. Werner, of New York, announces a reprint of Mackenzie's work, together with an English translation of the official report of the German physicians.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, September 12, 1888.

The President, J. Solis-Cohen, M.D., in the Chair.

Dr. J. Solis-Cohen read a paper on

SYPHILIS OF THE LARYNX, TRACHEA, AND BRONCHI.

Syphilitic processes are among the most important morbid processes affecting the larynx and trachea. Not only do they injure the structural integrity of the organs directly; but, by their location in the regions occupied by the origin and course of nerve supply, they lead to denutrition of the tissues generally, and to serious motor impairments of the muscles of the larynx. So varied are the manifestations of syphilis, and so important to the welfare of the patient their timely recognition, that considerable detail is proper in their elucidation. In hardly any other department of living pathology has the laryngoscope been of more signal service than in dispelling obscurities in the conception and comprehension of syphilitic disease of the larynx.

The distinctions between secondary and tertiary syphilis, as manifested in the upper air-passages, are so irregular and uncertain, that many writers prefer the terms recent and tardy. In fact, however, secondary lesions are sometimes tardy and tertiary lesions sometimes precocious. Secondary lesions are sometimes present as the sole manifestation of that period. Sometimes they precede cutaneous manifestations. Most frequently they occur in subjects already affected with what are known as mucous patches in other portions of mucous membrane, or with early cutaneous syphilides.

Pathology.—The earliest and far most frequent manifestations are subacute and diffusely hyperæmic conditions of portions of the mucous membrane, of varied extent and intensity; an erythema with turgescence, but without hypersecretion, occurring within from six to ten weeks after infection. The affected surface exhibits at first the usual rose-color of congestion, but, as stases, infiltrations, and hæmic transudations occur, it becomes more or less livid in patches which present mottled or flaky discolorations. Superficial erosions often ensue. Occasionally, deep-seated ulceration occurs. Sometimes paresis of the muscles of the larynx is produced. The erosions may be due simply to denutrition of epithelium from mere pressure by infiltrations; or to disintegration of a characteristic proliferative lesion known as the papule or mucous patch, by some termed broad condyloma, a product, according to Virchow, of the same histological character as the indurated chancre and the various gummous formations, namely, an infiltration of tissue with nucleated embryonic cells. These papules are characteristic, but by no means frequent syphilitic products in the larynx; and are so infrequent in the trachea that their occurrence there is denied by authorities the very highest. They are multiple recurrent lesions, almost invariably associated with mucous patches on other mucous membranes; usually lasting from three to five weeks, and sometimes much longer. They are observed from within a few weeks to a few months after infection; sometimes earlier, occasionally as late as eighteen months. They are far the more frequent in tuberculous subjects who have contracted syphilis.

The opinion is held by some that superficial ulceration is always due to their disintegration; and that they must have existed in many cases in which they have not been observed. Histologically they are composed of small-celled infiltrations into the corium and into dilated hypertrophied papillæ. Hence they occur in localities where papillæ exist. Consequently they cannot occur below the vocal bands. They are quite red when recent, but soon change to light gray as the epithelium thickens; they then appear as small, wrinkled, opalescent, flattish, ovoidal elevations, varying in size from pin-heads to small peas; depressed in the centre when mature, and when recent circumscribed with a peripheric inflammatory areola. They may subside without trace. When erosion takes place, the surface becomes punctatedly red from exposure of the papillæ. They may undergo destructive ulceration. They may become the starting-points of small pointed vegetations, histologically identical with papillomata. These are probably non-specific in character, though due to irritation excited by specific processes. They do not undergo ulceration, and rarely undergo absorption under specific medication. When forcibly removed, they repullulate quickly. Similar vegetations sometimes project from the edges of ulcerated patches of tissue. Though usually small, sessile, and multiple, they may acquire such bulk as to interfere seriously with respiration.

The erosions which occur on the surface of the papules or upon simply erythematous mucous membrane are usually superficial, but may extend through the mucous membrane and beneath it, under bad hygienic conditions. Under slight provocative exposures to cold and wet, fluxionary œdema sometimes takes place in their vicinity, occasionally to such an extent as to be menacing to life. The epiglottis often becomes very much thickened; the vocal bands thickened and dentatedly eroded. There seems to be no tendency for secondary lesions to extend from the larynx to the trachea.

Tertiary lesions come under notice most frequently in the stage of ulceration, usually following the liquefaction of gummous nodules, gummous infiltrations, or true gummata, as may be. The epiglottis is the most frequent seat; so frequent, that its lingual and lateral ulceration has been erroneously deemed pathognomonic of syphilis; but destructive lesions may occur in every portion of the larynx. The ulceration is both serpiginous and deep-seated, and while more commonly unilateral, there seems practically to be little limit to its phagedenic destructive ravages under unfavorable conditions, as it destroys and penetrates all the tissues, soft and cartilaginous. Slight provocation may produce fluxionary œdema in this stage also, which may be of the most serious character. Serious hemorrhages may occur from penetration of bloodvessels; and apnœa may ensue from incarceration of fragments of necrosed cartilages and soft tissues. Ulceration may be attended with proliferative vegetations which may occlude the air-passages. Superficial ulceration may heal with moderate cicatrization which eventually becomes hardly noticeable. Deep and extensive ulcerations heal under peculiar whitish, lustrous, stellate, retractile cicatrices, similar to those which follow burns. Instead of cicatrization, adhesions may take place between contiguous raw surfaces, and strictures of various kinds be formed in consequence.

The gummous lesions preceding these ulcerations are of three kinds: small gummous multiple nodules or nodular syphilides; diffuse gummous infiltration; and gummata proper, usually isolated.

Small gummous nodules (nodular syphilide, Lewin) vary in size from that of small bird-shot to that of peas, and are usually grouped in well-defined determinate figures in the body of the mucous membrane, and often so contiguous as to appear confluent. Gummata proper present as firm hemispherical nodules or tumors, from the size of peas to that of cherries or almonds, and sometimes much larger, in the connective tissue beneath the mucous membrane; usually uniform in outline, sometimes lobulated; undiscolored or reddish at the base and yellowish at the summit. Gummous infiltrations present as more or less longitudinal or more diffuse submucous thickenings corrugating the surface of the mucous membrane. All these products may undergo absorption.

When not absorbed, gummous nodules undergo purulent liquefaction. At this time they become softer, and more yellowish at the summit, the mucous membrane at the base becoming more inflamed and thickened, the whole mass looking not unlike a furuncle. The summit becomes perforated, and gives exit to thickened, yellow pus, with granular admixture of débris at first. The orifice rapidly enlarges by ulceration until it becomes fully as large in circumference as the nodule was, or larger; and readily coalesces with ulcerations from contiguous nodules. The ulceration extends in depth until it occupies the entire volume of the nodules, and then may penetrate all the tissues beneath, even to the perichondrium and cartilage.

The ulceration of the nodulous syphilide, as studied in a series of cases by Lewin, is said to take place more from periphery to centre than the reverse, being shallow at first, and then gradually deepening. The ulcer is round, depressed, and sharply bordered. Its bed is covered with a secretion which, from previous fatty degeneration, or purulent metamorphosis, is either thickish, or nearly lardaceous, or composed of purulent detritus.

The more longitudinal and diffuse gummous infiltrations undergo liquefactive ulceration much more slowly; but the subsequent ulceration, when unchecked, extends much more rapidly, and becomes more readily serpiginous and phagedenic; so that, coalescing with similar conditions in the vicinity, large surfaces in continuity become involved in its ravages. As it extends in superficies it penetrates slowly in depth until it also involves the deeper structures close to the perichondrium, and sometimes to the cartilage. Ulceration varies in rapidity, extent, and penetration according to the succulence or resistance of the tissues contiguous. The ulceration from diffuse gummous infiltration is preceded, according to Lewin, by extensive fatty degeneration of its surface, which gives it an almost grayish-white tinge. This is soon followed by actual defects which, at first shallow, increase in depth, and gradually penetrate to the perichondrium and the cartilage. These ulcers are characterized, like those from the nodules, by sharp definite circumscription, and by their being surrounded with an inflammatory swollen zone. They appear often as though a piece of swollen tissue had been cut out. The edges are often beset with slight crenations, which give them a gnawed appearance, but are never undermined; and their bottom is covered with a yellowish-white adherent mass, composed of pus, fatty detritus, and shreds of tissue. Gummata proper sometimes remain unchanged for prolonged periods. When they undergo degenerative metamorphosis there is formed, according to Lewin, only the characteristic viscid fluid, suppuration being exceptional. Ulceration takes place, however, in some instances, and penetrates deeply into the tissues beneath, as in the other two forms. Under unfavorable hygienic conditions of system, or of surroundings, the phagedenic ravages may become uncontrollable. They have been known to attack an artificial opening made to prevent suffocation by a gumma (Holden, *New York Medical Journal*, January 29, 1887).

Perichondritis and chondritis being set up after either form, the ulceration may penetrate the cartilage to the tissues external, forming a perichondrial abscess, which ruptures externally by a more or less circuitous route, whence the fragments of dead tissues are discharged.

Taken in point of frequency, the cartilaginous structures seem to be vulnerable in the order following: epiglottis, posterior vocal processes, arytenoids, supra-arytenoids, cricoid, cuneiform, and thyroid. Coming to the softer parts, the vocal bands are attacked next in frequency to the epiglottis, the left band far more frequently than the right, the interior supraglottic walls of the larynx, the aryepiglottic folds, the interarytenoid fold, the posterior wall, the ventricular bands, the subglottic walls of the larynx, the exterior of the soft parts in the pyriform sinus. When the cartilages are attacked, whether primitively or consecutively, the chain of morbid phenomena is perichondritis, chondritis, calcification, caries, necrosis, and elimination of sequestra in crumbled masses and in fragments. The elimination of dead cartilages may consume months, and even years. It usually takes place by the interior route, occasionally by the exterior. In both instances abscess and fistula are formed, and elimination of large fragments by the

interior route sometimes produces suffocative paroxysms, and occasionally actual suffocation.

The epiglottis, as repeatedly noted, is especially vulnerable to the syphilitic process, and every variety of lesion possible may ensue in any extent, from insignificant erosion to complete destruction, the character of the lesion depending upon that of the structure destroyed. It is this, as pointed out by Seiler, which gives such an irregular conformation to the epiglottis when its glands have been destroyed.

Exulceration of the entire mucous membrane at the edge reveals the exposed cartilaginous structure as a yellowish-white stripe embedded between two thickened masses of spongy-looking tissue. Ulceration of the cartilage often commences at the anterior surface in the form of a round ulcer with thickened excavated edges. Destructive ulceration usually progresses from the side and from the edge. When the valve is only partially destroyed, its remains may present two or more irregular fragments separated by fissures of varying depth, or a single fragment of any breadth, from a small stripe to nearly the entire bulk.

When totally destroyed the orifice of the larynx is separated from the post-lingual sulcus by a more or less irregular ridge of ulcerated tissue, which, after cicatrization, presents as a pale, deformed stump. This, however, does not, as rule, prevent glutition, and in some instances does not even interfere with it; the occlusion of the larynx being effected by the base of the tongue, on the one hand, and by close approximation of the ventricular bands and sphincter-like approximation of the aryepiglottic folds, on the other.

The other cartilages, when the subject of destructive progressive ulceration, are macerated out of their investments, as it were. The ulcerative process extends into the cartilage surrounding it, if a small one, or circumscribing a portion of it, if it be a large one. The cartilage then perishes by necrosis, is laid bare, and becomes detached from its connections, in some instances remaining entangled in a sort of pocket scooped out of the soft tissues, The necrosed cartilage finally breaks through to the interior, and is usually discharged by expectoration. If it be situated below the glottis, paroxysms of suffocation may ensue, or even actual apnœa, as from any other foreign body. Exfoliations of the cricoid cartilage are the most frequent source of these untoward results, which, however, sometimes ensue from exfoliations of the thyroid.

The ulcerative process sometimes penetrates blood-vessels and hemorrhage follows. Such hemorrhage has been known to terminate fatally (Turck, *op. cit.*, p. 413, illustrated).

The vocal bands frequently sustain permanent lesion varying from minute losses of substance to entire destruction. Transversal dentated erosion of the border is not uncommon, and detachment from the posterior vocal processes not infrequent. Sometimes abundant irregular papillary proliferations take place, forming mobile, projecting, pyramidal, or irregular dendritic vegetations, which project like soft, mobile stalactites into the interior, and which are large enough, in exceptional instances, to demand operative interference. Similar conditions and productions may prevail with the ventricular bands. Superficial ulcerations may heal with moderate cicatrization, which eventually becomes hardly noticeable. In deep and extensive ulcerations, when cicatrization occurs, a peculiar lustrous, whitish, stellate, contractile cicatrix is formed, similar to the syphilitic cicatrix in other mucous membranes. Instead of cicatrization, adhesions often take place between ulcerated surfaces, and thus a variety of injurious morbid conditions occur. The vocal bands may become united by a broad fibrinous band stretching between them, or by a similar obturator formed of their thickened and distended mucous membrane. The membranous web thus formed between the vocal bands usually unites them for a variable distance, commencing at the commissure, the posterior border of the structure being crescentic in outline. Exceptionally the cords may become involved their entire length, with an orifice in the central portion of the web (Navratil).

This membranous union has been known to take place in six days (Rossbach: Langenbeck's *Archives*, vol. xiv.). In a case watched by Sommerbrodt (*Berlin. klin. Woch.*, April 1, 1878), the anterior third united in fourteen days, and the union of the bands was complete in six weeks. In other cases the vocal bands become united without any membrane intervention.

Other adhesions sometimes take place, which may seriously impair glutition, phonation, and even respiration. These comprise depression of the epiglottis to one side or the other, or to an aryepiglottic fold, and preventing proper closure of the valve or complete elevation; adhesion of the epiglottis to either lateral pharyngeal wall; adhesion of ventricular to vocal bands, sometimes preventing closure of the glottis, and often producing a shrill, weak, piping voice; adhesions anteriorly of the two vocal bands or of the two ventricular bands; adhesions of the inner surfaces of the mucous membrane of the arytenoid cartilages, so as to fix the vocal bands immovably in the median position. Other results of syphilitic laryngitis are hypertrophies, diffuse and discrete, of mucous membrane, connective tissues, or muscular substance, and consequent stricture, varying in extent, locality, and interference with function; myopathic paralysis; muscular atrophy, and the development of morbid growths.

Perichondritis or chondritis, whether following ulcerative destruction of the soft tissues or preceding it, usually excites considerable fibrinous infiltration into the adjacent submucous connective tissue, producing a chronic fibrinous œdema. When extensive, this produces suffocative symptoms, and may threaten asphyxia. Sometimes the submucous infiltrations become organized and transformed into dense fibrous tissues incapable of undergoing absorption, and thus they produce deformity, occlusion of the larynx, and stricture. The strictures are often incapable of yielding to systematic dilatation, even when instituted early; and hence tracheotomy is usually necessary to provide artificial means for respiration below the seat of obstruction. After tracheotomy, the process may progress to complete obliteration.

These strictures are of the most varying form and calibre, some of them distorting the configuration of the interior of the larynx almost out of recognition. Fortunately, most of them occur in the supraglottic region, where they are far more accessible to effective treatment.

Lesions of either soft tissues or cartilage in the neighborhood of the important crico-arytenoid articulations excite non-specific inflammation of the joint which may

produce true or false ankylosis. Syphilis is probably the most frequent cause of this lesion. When the specific process invades the joint, the ligaments and perichondrium suffer, and true ankylosis, or luxation, or disarticulation, and even discharge of the arytenoid and supra-arytenoid cartilages may ensue.

In the latter stage of unrestrained lesion, the cachexia is much the same as in analogous advanced stages of tuberculosis.

Myopathic paralyses of the muscles of the larynx may occur in the later periods of secondary syphilis, and at any period of tertiary syphilis. They are most frequently unilateral, the left side being affected far oftener than the right. The onset is often sudden or acute, following severe or sudden exposure to cold and dampness. The paralysis often affects the dilator muscles, and bilateral paralysis of the dilators is not infrequent. Paralyses of the arytenoid muscle and of the entire constrictor group are the most frequent varieties. These paralyses differ in their pathological origin from other examples of paralysis in syphilis, which are due, respectively, to compression of the tract of the nerve-supply by diseased tracheo-bronchial glands or other structure, and to neural or cerebral lesions which present in the latter stages of the confirmed dyscrasia.

Tertiary lesions of the trachea are first observed so very frequently in the stage of ulceration, that it had been assumed that tertiary syphilis of the trachea always produces ulceration (Vierling). Schech and others have reported instances of resorption of gummata under specific medication. The clinical tendency, however, is to ulceration. Tracheal ulcerative lesions are sometimes unassociated with lesions elsewhere in the aërial tract. Much more commonly they are found associated with similar lesions in the larynx, in the bronchi, or in both.

Pharyngeal syphilis exists in many instances (thirty out of forty-six, collated by Vierling), and pulmonary syphilis in not a few (sixty out of fifty, Schech). They are often found associated with additional syphilitic lesions at a distance. In a large proportion of instances a primitive bronchus is affected, the left one the more frequently; in some, both primitive bronchi; in a few, the smaller ramifications (Vierling); and, exceptionally, even the minutest (Lancereaux). In some instances syphilitic lesion is confined to the bronchi (five cases, by Vierling). The upper portion of the trachea suffers most when the larynx is involved; the lower portion, when the disease is isolated or associated with syphilis of the bronchi. In some instances the middle portion alone suffers (Vigla and Charnal, Berger, Mackenzie, of Baltimore, Semon); exceptionally, the two extremities, with complete conservation of the middle portion (Tessier, cited by Rey).

When not occurring in direct continuity with similar lesion in the larynx, the most frequent seat of ulceration is on the anterior surface of the lower portion of the trachea just above the bifurcation whence it extends upward, or in patches continuously sometimes as far as the cricoid cartilage; sometimes almost completely around the interior in periphery, occasionally completely around. Multiple perichondritis is easily set up and results in abscess, denudation of cartilage, calcification, caries, and necrosis. Portions of dead cartilage are sometimes coughed up in fragments. Sometimes semi-detached portions project into the interior and interfere seriously with respiration and with expectoration. The ulceration usually begins in a number of small ulcers which extend in depth and in periphery, baring the perichondrium, and causing portions of the cartilaginous rings, or entire rings, to undergo denudation, necrosis, and exfoliation. Coalescence with similar ulcerating surfaces, or phagedenic extension, sometimes produces very extensive ravages which may involve nearly the entire circumference of the trachea, and nearly, occasionally quite, its entire length. Flaps of detached membrane sometimes fall over, producing valvular impediments to inspiration, or to expiration, according to the position of the attachments. The cicatrization of annular ulcerations produces stricture often so low down as to be beyond relief even from tracheotomy, the parts not being well adapted to respond to artificial dilatation. The strictures are irregularly ovoidal in shape, sometimes funnel-shaped, and of varying thickness from a few lines to that of several rings.

These cicatrices may reduce the calibre of the trachea so considerably as to prevent respiration. Occlusion to the calibre of a crowquill is not uncommon, and still greater occlusion has been noted in some instances. Annular stricture at the bifurcation may become so great as barely to admit the passage of a delicate probe. (Obtulowicz: *Cent. f. Chir.*, 1879, No. 7.)

Irregular annular dilatation of the trachea is often produced by the pressure of the air current above the stricture and sometimes below it. Even dilatation of the bronchi has been noticed.

Projecting ridges of cicatricial tissue below the point of stricture are sometimes so located as to occlude the inferior orifice of a tracheal canula more or less, a point not sufficiently recognized, for it might be practicable in some instances to push a canula into a position which would allow its inferior extremity to pass the obstruction.

Stricture of the bronchi is rare. It affects the left bronchus more frequently (Verneuil, *et al.*); sometimes the right one (Wilks, *et al.*); occasionally both (Virchow, *et al.*). The connective tissue around the strictured portions usually undergoes permanent sclerotic proliferation. Sometimes there is great peritracheal sclerosis, sometimes none. The peritracheal glands may undergo great enlargement. All these conditions superadded to the internal stricture, may greatly increase stenosis.

Ulceration sometimes penetrates through the trachea producing abscess opening into the œsophagus or the mediastinum, the aorta (Rokitansky: *Path. An.*, Bd. III, p. 22; Wilks: *Trans. Path. Soc.*, London, 1865, p. 52), the pulmonary artery (Kelly: Id., 1872, p. 45), or the vena cava (Turner: Id., xxxvii. p. 117). In at least two instances of ulceration of the left bronchus the left branch of the pulmonary artery has been found perforated (Vierling).

Inflammation around the trachea or bronchi sometimes produces adhesions to the œsophagus or to other tissues, which depresses the trachea and larynx and impairs their upward movements in glutition. Sometimes it produces peritracheal or tracheo-bronchial abscess. Abscess of a bronchus, sometimes deeply seated, has occurred after tracheotomy, apparently as a result of too assiduous swabbing of the canula.

The lesions of hereditary syphilis are almost identical with those of the gummous infiltrations of tertiary syphilis.

They sometimes appear very early. Ulcerations have been noticed in infants at two months of age (Parrot: *Prog. Méd.*, 1878, p. 653). Stricture from perichondritis has been noticed at the same age (Fränkel: *Wien. med. Woch.*, 1868, No. 18; Parrot: loc. cit.).

Symptomatology.—The laryngeal symptoms of secondary syphilis are not characteristic. They are chiefly comprised in dissonant alterations of the voice, either hoarseness, dysphonia, and in some cases occasional or temporary aphonia. The hoarseness is supposed to have some peculiarity which has been termed *raucedo syphilitica*, but this is not the case. In some instances it is simply due to the catarrhal laryngitis, in others to paresis of one or more of the constrictor muscles, or possibly to paralysis of the tensors. Respiration is not affected except in those instances in which œdema occurs in such a position as to occlude the passage for air, when it will be announced by dyspnœa and stridulous respiration, the characteristic symptoms of that condition. Titillation and cough are not as frequent as in inflammations of other origin. In many instances there is no tickling and no cough, no pain and no dysphagia.

Dysphagia is not present unless there be œdema of the parts utilized or pressed upon in glutition.

In tertiary syphilis of the larynx the symptoms are usually those of impairment of phonation, followed in severe cases by dyspnœa and stridor also, chiefly inspiratory. The stridor is worse at night from inaction of the auxiliary muscles of respiration. Should the mechanical impediment to respiration increase, inspiratory depression of the soft parts below the sternum takes place. If relief is not obtained, artificially or otherwise, asphyxia supervenes from imperfect aëration of the blood. Suffocation may occur suddenly from impaction of detached cartilage; but is more frequently slow enough in its approaches to allow time for tracheotomy.

Titillation and cough are more frequent in the earlier stages than in secondary syphilis; but they diminish after ulceration has taken place, except in so far as they are produced from time to time by morbid products detained upon diseased and adjacent surfaces. Pain is infrequent before the period of ulceration; after that it may be severe, and radiate into the ears as in other ulcerative diseases. In the early stage there is no expectoration. The earliest expectoration is of collateral catarrhal products only. As ulceration progresses it becomes muco-purulent, and then purulent and sanguineo-purulent, and mixed with detritus according to the stage and location of the lesion.

If gangrene takes place, the odor becomes fetid, and the expectoration contains fragments of dead, soft, and cartilaginous tissue, as may be.

Dysphagia ensues when the disease is in a locality to interfere with glutition, and odynphagia when ulcerations have occurred in the same localities.

In tertiary syphilis of the trachea the symptoms affect mainly the function of respiration, the voice often remaining normal even when breathing is seriously embarrassed.

Pain along the course of the trachea, if constant, is indicative of lesion at that particular point. Cases may run their entire course without any special symptom, even in the presence of stricture of the trachea, and of the bronchi, and of extensive disorganization as revealed at the post-mortem examination.

In hereditary syphilis, the symptoms are sometimes congenital and may remain practically continuous for years. Respiration and phonation are both affected. The cry of the infant sometimes possesses a shrill metallic resonance which has been compared to that of a tin trumpet. Cough is more frequent in the child than in the adult. Glutition is often difficult and sometimes painful. Expectoration occurs in the suppurative stages when the child is old enough to expel the products, which by infants are swallowed or retained in the air-passages. Laryngismus is a symptom of frequent occurrence in young children.

Etiology.—The probable condition attracting the manifestation of constitutional syphilis to the larynx is superficial catarrhal laryngitis from hereditary or acquired proclivity, or from exposure, or from abuse of tobacco, alcohol, or other indulgence, or from misuse of the voice. Such exposures cause more males to be affected than females, as there is no assignable sexual reason for preponderance. Tracheal lesions, on the other hand, have been reported more frequently in females, probably because the laryngeal lesion is attended to more promptly by the male. Syphilitic disease often extends by continuity from the oropharyngeal region to the larynx, principally along the pharyngo-epiglottic fold to the epiglottis, and thence along the aryteno-epiglottic fold, and from the two structures to the interior. Hereditary syphilis has been observed in intrauterine life (Monti: *Med. Times*, Phila., April 28, 1877, p. 336). Hereditary syphilis of the intensest character has been occasionally observed at a very early age, as in the case of an infant whose symptoms began with coryza in the tenth week of life, and terminated in death by suffocation from stenosis nineteen days later. Post-mortem, with examination, revealed, in addition to syphilitic lesions in the liver, destructive perichondritis of cricoid and left arytenoid cartilage, and fatty degeneration of the arytenoid and both posterior crico-arytenoid muscles and the left superior nerve (Fränkel: *Wien. med. Woch.*, 1868, Nos. 69, 70, cited by Ziemssen and by Mackenzie). Children less than a year of age often show laryngeal lesions of hereditary syphilis, and ulcerative lesions have been seen at two months of age (Parrot: *Prog. Méd.*, 1878, p. 635). Many cases occur in children but a few years of age, and sometimes the manifestations are deferred to the period of puberty or even later. Indeed, in opposition to the received opinion of syphilographers, I have reason to believe that in a few instances I have seen its manifestations delayed as late as the third and even the fourth decennium. True, in such instances as the latter it is quite possible that infection may have been acquired in some method unknown, without having been followed by any secondary manifestations, or that early hereditary manifestations may have escaped recognition. The secondary manifestations occur most frequently in adolescents and young adults. They appear most frequently at periods varying from a few weeks to a few months after infection, sometimes as late as the fourteenth or seventeenth month (Morgan). Tertiary lesions are most frequent at rather maturer ages, and occur occasionally in quite advanced life. They have been reported as early as the sixteenth month (Türck, op. cit.), and as late in their first appearance as the thirtieth (Türck), and even the fiftieth year (Mackenzie). Tracheo-bronchial tertiary lesions have been reported as appear-

ing as early as the ninth month after infection, but these lesions are usually coincident with the laryngeal lesions when not immediately consecutive to them.

Most of the instances of tracheal syphilis occur in individuals whose employments expose them to irritation from dusts of various kinds (Vierling: *Deutsches Arch. f. klin. Med.*, 1878, Bd. 21). Hereditary tracheo-bronchial syphilis is far less frequent than the laryngeal forms. It has been observed before the age of puberty.

Diagnosis.—Differential diagnosis between secondary and tertiary lesions is sometimes difficult, particularly in the transitionary period especially described by Whistler. The discriminating characteristics are less well marked in the laryngeal syphilis, perhaps, than in any other variety.

It may, however, be broadly stated that secondary lesions, erythematous, papular condylomatous, or paralytic, are superficial; and that tertiary lesions are gummatous, ulcerous, carious, necrotic, and deep-seated. Laryngitis occurring within a few months of infection is almost invariably secondary. Lesions appearing before the termination of the third year are presumptively secondary: those appearing within the third year, secondary or transitional; and those appearing after the termination of the third year, tertiary. Nevertheless, secondary lesions may be ulcerous, and undoubted tertiary manifestations have been recognized even within nine months of infection.

The history of the case, and the previous or actual presence of manifestations of syphilis elsewhere, are the main positive factors in the diagnosis of specificity, especially in the early stages of either variety. The later lesions of tertiary syphilis are often sufficiently characteristic; sometimes not at all so. In cases of doubt, antisyphilitic treatment will almost always detect a lesion of syphilitic origin, but not invariably. Hence, in instances of strong suspicion, the various methods of antisyphilitic medication should be thoroughly tried before that test is abandoned. This suspicion is justifiable in cases of obstinate chronic laryngitis, whether ulcerative or not, in individuals in whom no other appreciable local or constitutional cause can be detected.

Laryngoscopic inspection is an invaluable aid in diagnosis; though practically indispensable, it is inadequate for fully appreciating the extent of deeply seated lesions; and its revelations are not always sufficient to establish the diagnosis in the absence of corroborative lesions elsewhere. Erythematous and catarrhal inflammation of secondary syphilis, when diffuse, are not to the ordinary eye distinguishable from similar non-specific conditions. Circumscribed erythema, though usual in syphilis, occurs in non-specific laryngitis also, consequently that condition alone is insufficient for discrimination. Patchy erythema on the vocal bands, and elsewhere, may be regarded as characteristic. Not so, however, the shaded pigmentations at the extremities of the vocal bands.

Symmetric bilateral localization of erythematous and other patches is highly characteristic of secondary syphilis; but a contrary condition by no means excludes the diagnosis. Isolated bilateral congestion of the supra-arytenoid structures and of the cartilages of Wrisberg has been cited as pathognomonic. Nothing can be more fallacious or misleading. Enlarged inguinal and post-cervical glands furnish excellent corroborative testimony of syphilis.

Papules, or condylomata, upon an erythematous mucous membrane, are to be considered pathognomonic. Their recognition may require an exceptionally good light on the one hand, or repeated examinations on the other. They must be carefully discriminated from minute collections of mucus or of saliva.

Diffuse gummous infiltration is to be distinguished first from inflammatory syphilitic infiltration by the coexistence of gummous processes elsewhere, its more circumscribed contour, and its sharper definition. Differential diagnosis is much easier after it has reached the stages of liquefaction and ulceration.

Syphilitic ulceration usually proceeds from above downward, rarely in the opposite direction, and often in extension from ulceration in the pharynx. Repair usually proceeds from below upward. Apart from these guides, there is nothing positively characteristic enough to determine an ulceration to be syphilitic in character by mere inspection.

The absence of pain has been regarded as characteristic; but, on the one hand, carcinomatous ulceration often exists without pain, and, on the other hand, the ulcerative lesions of syphilis are sometimes attended with lancinating pains of the most severe character.

In the gummatous stage of tertiary syphilis diagnosis is not difficult. Nodular syphilides and gummata are recognized in the forms and at the localities mentioned under pathology. They may be confounded with other neoplasms, and with abscess. In cases of doubt, antisyphilitic treatment should clear up the diagnosis. The physical distinction between gummata and condylomata may in some instances be obscure (Semon).

The main reason why gummata are so infrequently seen as to have led some observers to an erroneous opinion as to their rarity, is that many patients do not present themselves until after the stages of liquefaction and ulceration have become established. When this stage has not been observed, and the larynx, as is more usual, is not inspected until after ulceration has considerably progressed, the appearances are not always characteristic. They may be confounded with those of lupus, carcinoma, and tuberculosis. The general diathesis, the clinical history, the existence of enlarged submaxillary and post-cervical lymphatic glands, the character of concomitant affections of the skin and mucous membrane, the aspect of the patient, assist in discrimination. Sometimes, too, tuberculous and syphilitic lesions coexist.

The typical tertiary ulcer, sharply defined, and below the surface of the mucous membrane, is more or less circular when recent, more or less crenated when reparation is taking place at one or more points of the circumference, and looking as though cut out with a punch when in œdematous tissues. Its borders are sharp, elevated, but not often undermined, and more or less rounded in their visible outline, and are surrounded by a more or less circumscribed inflammatory areola in the mucous membrane. The bottom feels hard to the probe on palpation. The bed of the ulcer is grayish, or lardaceous, yellow from fatty detritus, and covered with adherent concrete pus, through which, here and there, prominent rosy granulations often project. The surrounding tumefaction is harder and more indurated than in other varieties of ulcer. Purulent accumulations are rather indicative of the syphilitic process. At a later date

denuded or necrosed cartilage may be visible in suitably located ulcers.

In cases in which neoplasms have become developed at the seat of existing ulcerations or of cicatrized ulcerations or erosions, it is often impossible to pronounce as to their nature, even by the test of anti-syphilitic treatment. Not only do such neoplasms exist independently of the syphilitic process, or as the result of irritation provoked by syphilitic process in the vicinity; but when undoubtedly syphilitic in origin they rarely disappear under specific medication. Tertiary syphilis is usually recognizable in the stages of œdema of the larynx; and almost always in the reparative stages of cicatrization, or in the subsequent stages of stenosis, whether from cicatricial retraction or from organization of effused products.

Prognosis.—Secondary lesions, even when ulcerative, are most frequently curable without cicatrix or without any other sequel. Ulceration of the vocal bands sometimes leaves permanent defect of tissue. The prognosis is good except during temporary conditions of œdema, when it may be grave for the time being. The inflammatory congestion and turgescence are more chronic than in catarrhal inflammations, and are often recurrent. Actual hyperplasia is apt to remain permanent, even after cure of the syphilitic lesion, despite the most assiduous treatment; and when it occupies a vocal band the voice may be permanently impaired. The singing voice may remain imperfect, although the conversational voice be fully restored; the injured tissues being unequal to the nicety of adjustment requisite for cantation.

In tertiary lesions the prognosis depends mainly on two factors: First, on the impairment of the general health, and the significance of lesions elsewhere, especially in the brain and meninges and in other important organs. Second, in the extent of ulceration and the character of deformation or stricture which may follow. Temporary gravity exists in the presence of œdema; during the period of exfoliation of necrosed cartilages, and in acute bilateral paralysis of the dilator muscle, the result of exposure to cold or other cause, or to unilateral paralyses when the opposite side is immobile from gumma, or from crico-arytenoid ankylosis (Charazac: *Rev. Mens. de Lar.*, Sept. 1884), any of which conditions may demand prompt tracheotomy to prevent death by suffocation. Ulcerative lesions of the trachea may be fatal by hemorrhage from penetration of large bloodvessels; by pneumonia from access of food through perforation of œsophagus (Berger); or by septic processes due to rupture of the mediastinum. Permanent impairment of the voice is to be expected in all cases in which the vocal bands undergo serious injury, and in many in which permanent changes are likely to take place in other structures contiguous to the glottis.

Glutition is rarely affected, even after complete destruction of the epiglottis; and in exceptional cases difficulty is mainly confined to fluids swallowed without deliberation.

Stricture rapidly supervening upon hyperplasias is often amenable to active treatment, sometimes with striking rapidity (Krishaber: *loc. cit.*); but the more frequent stricture of slow progression can only exceptionally be brought under control.

Serious danger attends even cure of extensive ulcerative lesions in the interior of the larynx, for the resulting stricture, if severe, is likely to necessitate tracheotomy, with great probability of permanent retention of a canula. It is rarely amenable even to excision of cicatricial tissue by external access. Subglottic stricture is much more serious than supraglottic, and tracheal far more serious than laryngeal stricture. Stricture of the trachea, when low down, is practically insusceptible of amelioration; and death by slow apnœa, or by sudden suffocation, is the usual outcome.

When the syphilitic cachexia has advanced so far as to have produced incurable lesions in important viscera or in the cerebrum, death may ensue from these causes despite sustained cure of syphilitic lesions in the larynx. In cases complicated with paralysis of the dilator muscles of the larynx from cerebral lesion, the death may take place by occlusion of the glottis and suffocation, or by encephalitis and coma.

In hereditary syphilis the prognosis is very much the same as in tertiary syphilis; being much worse in infancy and childhood than in more delayed manifestations. The small size of the larynx renders stricture and intercurrent œdema far more significant; and the tendency to spasm of the larynx inherent to all laryngeal affections in childhood presents an additional element of danger. Fatal issues from these three causes are not infrequent. An element of uncertainty as to the final result remains in all varieties of syphilis of the larynx and trachea, due to the fact that permanent liability to recurrence prevails in many instances, despite the best apparent results of the most judicious treatment; and often, too, after prolonged intervals of immunity from any further manifestation of constitutional syphilis.

Treatment.—Fortunately, lesions even of great destructive and menacing tendency are amenable, as a rule, to treatment; often promptly.

The treatment, broadly stated, is that applicable to constitutional syphilis in general; mercury in the early manifestations and iodides in the late ones. In many of the latter, if not most, the mixed treatment combining the two specifics is the most serviceable. In congenital syphilis the gray powder is believed to be the most efficacious form of the drug. While willing to admit that secondary lesions often subside without traces and without much risk of subsequent tertiary manifestations, although mercury be withheld, I deem it the more prudent practice, and, therefore, the best practice, to employ mercury; in the belief that its specific constitutional influence affords the patient better protection as to future manifestations. As to the value of iodides in tertiary syphilis, there is no difference of opinion. Tonics are often indicated. All sources of irritation, exposures, excessive use of the voice, alcohol and tobacco, are to be avoided.

Sedative inhalations in vapor or spray are often of great topical benefit in subduing collateral inflammation; and antiseptic inhalations are indicated in gangrenous cases.

Secondary syphilis. Mercury may be administered by the stomach or by the skin. When the lesions are moderately severe or slow in progress, the corrosive chloride may be administered in doses of from one-sixteenth to one-eighth grain, three times a day. The green iodide may be given in doses gradually increased from one-sixth of a grain three times daily to the point of tolerance. The addition of extract of belladonna may cause it to be better borne by the stomach. In individuals in

whom serious gastric disturbance is produced before any specific effect has been noted, and in seriously severe cases and cases of rapid progress inunctions of a drachm of mercurial ointment daily are preferable, or pencillings with solutions of oleate of mercury in oleic acid, ten per cent. Lewin prefers hypodermatic injections of corrosive chloride. Concurrent stomatitis is to be combated by the internal administration of potassium chloride, or the use of a saturated solution of that salt, or of a weak solution of potassium permanganate as a mouthwash. It is hardly necessary at the present day to mention that salivation is to be avoided. In my own experience topical medication is, as a rule, superfluous in non-ulcerative secondary syphilis, and often unnecessary in the presence of ulceration. When topical medication seems necessary, inhalations of sprays of corrosive chloride (Demarquay), half an ounce or more daily of a solution containing one grain to four ounces of water, are useful locally and constitutionally. In particularly obstinate conditions, especially in the presence of hyperplasias, the topical application of solutions of iodine and potassium iodide in glycerine (Schnitzler), half a drachm and a drachm respectively to the ounce, made daily or at longer intervels, sometimes accelerates the cure.

In the transitional stage and in the tertiary stages, the mixed treatment has been the most beneficial in my own practice; one-sixteenth to one-eighth of a grain of the corrosive chloride, five to ten grains of potassium iodide in half an ounce or more of the compound syrup of sarsaparilla, three times a day. It may sometimes be necessary to increase the dose of the iodide up to the point of tolerance. In such cases the "grain to drop" solution is the most convenient preparation. The danger of inducing œdema of the larynx by sudden large doses must not be forgotten. When necessary, sodium or ammonium iodide may be substituted for the potassium salt, or hydriodic acid may be employed.

In the presence of œdema, hypodermatic injections of corrosive chloride (Lewin), one-thirtieth of a grain, twice a day for a day or two, and after improvement at intervals of three days or more, have proved quite efficacious. If amelioration is not prompt, and if the patient cannot be carefully watched by an attendant competent to interfere in an emergency, it is best, in my opinion, to perform prophylactic tracheotomy, instead of awaiting its urgent indication. The same rule is applicable to threatening cases of extensive hyperplasia whether from specific or from non-specific infiltrations.

Nevertheless, remarkably happy results, even in urgent cases of these kinds, have frequently followed active treatment by inunction (Krishaber) and by hypodermatic injection (Lewin). Intubation of the larynx from the mouth (O'Dwyer) has been recommended as applicable in many instances of œdema and constriction heretofore treated by tracheotomy. As yet, I know of no experience with intubation in this special connection.

Ulcerations heal more promptly when the constitutional treatment is seconded by topical cauterizations with fused silver nitrate, or with mercuric nitrate one part to from four to ten of water, or with cupric sulphate in crystal or saturated solution. Chromic acid, one part in from five to eight of water, has long been extolled (Isambert). Some prefer iodoform (Morgan). On the other hand, extensive ulceration often heals promptly under the influence of constitutional treatment alone.

Vegetations, detached flaps of mucous membrane, and semi-detached fragments of necrosed cartilage call for operative removal with cutting forceps, evulsion forceps, or snares, as may be most convenient, if these products are so located as to interfere with freedom of respiration or to threaten such interference. When these manipulations are impracticable, tracheotomy may be requisite. When tracheotomy has been performed under any of the conditions mentioned, the canula is to be removed as soon it has become apparent that its retention is no longer essential to the safety of the patient. Cicatricial stricture of the larynx may be treated by the introduction of the intubation tube through the natural passage (O'Dwyer). This treatment may be applicable to stricture high up in the trachea. Stricture in the middle portion of the trachea requires low tracheotomy and the introduction of a tube long enough to reach beyond the constriction. Stricture at the bifurcation is hopeless.

Paralyses, even those of the posterior crico-arytenoids, are usually amenable to anti-syphilitic treatment even when of considerable standing. This fact seems to indicate that the atrophy found in necrotic paralysis is not due to simple inaction of the muscle, but rather to trophic impairments of neurotic origin. Electrization may be employed when relief does not ensue from systemic medication.

Membranous webs, occluding the glottis from side to side, are divided by incision or by galvano-cautery, the edges cauterized, and readherence prevented, if possible, by frequent introduction of dilating sounds. These laryngoscopic operations are often rendered futile by insurmountable tendency to recicatrization, whereby the morbid condition is reproduced. Success in cases of this kind would seem to require exposure of the interior of the larynx by external division of the thyroid cartilage, and excision of the whole of the cicatricial tissue (Mackenzie).[1]

When syphilitic laryngitis has existed for a long time, such an amount of destruction may have taken place, and such a degree of systemic poisoning, as to render recovery impossible. The constrictions produced by the cicatrices of extensive ulcers, and the adhesions between adjoining surfaces, in cases that recover, are often such as to render tracheotomy necessary, with the permanent use of the tube; for the constrictions following syphilis are not, as a rule, amenable to dilatation.

Threatened asphyxia or unconquerable dyspnœa, from gumma, loose cartilage, morbid growth, abscess, or œdema, may necessitate tracheotomy. Tracheotomy for the purpose of conquering dyspnœa due to tumefactions in the larynx is perfectly justifiable, and usually successful. It is likewise justifiable for the mere purpose of securing rest to the organ—much more so, indeed, than in analogous conditions attending tuberculosis.

The treatment for local adhesions consists in relieving the tension as far as possible by laryngoscopic division of the constricting bands of tissue, with knife or with electric cautery, and then cauterizing and recauterizing the adjacent surfaces, to prevent fresh adhesions. These cases require careful watching and prompt attention to overcome the disposition to recurrence, which is very apt to take place in spite of all efforts. When the epiglottis

[1] Med. Times and Gaz., August 19, 1871, p. 218.

is implicated, much good can be done by teaching the patient to move the organ frequently by means of his forefinger.

In a case of stenosis due to "concentric hyperchondrosis," as a result of the hyperplastic chondro-perichondritis, Prof. Heine performed a successful resection of the anterior portion of the thyroid cartilage, splitting that structure in the middle line, separating the perichondrium and superjacent soft tissues, to the distance of one-half its surface on the two sides, with the elevator, and then removing the denuded portions by longitudinal section with bone forceps. The patient rallied so well from the operation that an artificial vocal apparatus could be substituted for the ordinary canula on the fifth day. He became able to resume work after a while; but the disease made new inroads, and he died, eleven months later, in an advanced stage of tuberculosis.

Despite the most judicious treatment, and the most satisfactory immediate results, recurrence or recrudescence takes place in many instances at variable intervals, requiring resumption of specific treatment. The most satisfactory results claimed by any writer have been in cases actively treated by Lewin with hypodermatic injections. It is advisable to keep patients under observation for many months after active treatment has been discontinued. Mercuric iodide (biniodide) in small doses, one-twentieth to one-tenth of a grain, three times daily, may judiciously be given for prolonged periods during which apparent health exists. Potassium iodide, in diminishing doses, should be administered from time to time for a few days every month until the patient begins to show susceptibility to physiological effects from small doses; and then this susceptibility should be tested from time to time at intervals of a few months. Such supervision for two years at least seems to present the best prospect for riddance from the diathesis.

It may be mentioned in conclusion that, under intercurrent attacks of erysipelas, obstinate cases of tertiary syphilis of the larynx and trachea have undergone cure after having resisted all medicinal treatment.

Stated Meeting, October 10, 1888.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. G. E. DE SCHWEINITZ presented the following paper on

ACUTE UNILATERAL OPTIC NEURITIS, WITH THE REPORT OF A CASE.

Cases of sudden failure of sight in one eye, with little or no ophthalmoscopic changes, are occasionally encountered, in which the attack is attributed to exposure to cold. Sometimes in these instances congestion of the optic disk is present, and a retro-ocular neuritis has taken place. Other cases of acute optic neuritis, sometimes monocular, sometimes double, are on record. Thus, Max Haadel[1] observed nine cases, some single and some double, with and without defects in the field of vision, usually with serious disturbance of sight, mostly with pronounced inflammation of the papilla and neighboring retina, in which exposure to a draught of air was the imputed cause. Periostitis at the foramen opticum was doubtful and the absence of syphilis, sugar, and albumen, lead, and other poisons was assured in every case. In M. Schlüter's[1] statistics, among 38 cases of neuritis and neuro-retinitis, 7 are classed as primary, while the remainder are arranged as follows: 13 of central origin, 6 from specific causes, 4 followed as the result of pathological orbital processes, 2 from abuse of alcohol and tobacco, 2 from albumen, and 1 each in connection with the puerperal state, after injury, from acute myelitis, and from hereditary reasons.

E. Schmidt,[2] in an examination of the cases of optic neuritis in the clinic of Prof. Hirschmann, at Charkow, found, among 120 cases in which the etiology was recorded with some degree of exactness, two instances of papillitis or papillo-retinitis due to cold. Voissius[3] has recorded a case of monocular optic neuritis in a man aged sixty-one, the attack coming on as the result of catching cold during a long wet drive. Recovery, with a hemiopic defect in the field of vision, was the outcome of the disorder. Roi[4] reports some examples of optic neuritis which he looked upon as rheumatic. They appeared monocular, were accompanied by a speedy diminution of visual acuity passing into amaurosis, but not, however, to the exclusion of a return to normal sharpness of sight. H. F. Hansell[5] describes two instances of acute optic neuritis of rheumatic origin, one monocular in a healthy married woman, and the other double in a man aged thirty-one. In each there was sudden loss of vision, swollen optic disks, and under treatment a rapid return to normal visual acuity. In Dr. Hansell's paper references to analogous cases are recorded, and L. W. Fox[6] has recorded an instance of acute monocular optic neuritis. Recently R. H. Derby[7] has reported a case of uniocular neuro-retinitis in a girl whose father had had syphilis, but who had no other manifestation of constitutional taint. There was at first a central scotoma, then optic neuritis. Light-perception was lost, but under mercurial inunctions and iodide of potash the swelling of the disk, which had amounted to 7 D., subsided, and fair vision was recovered.

Cases of optic neuritis without evident cause are occasionally recorded, as one by Power.[8] The patient was an anæmic lad of seventeen; the neuritis was double; albumen and syphilis were absent; the lad had had two attacks of rheumatism, and his father was gouty. Friedenwald[9] describes an instance of right optic neuritis in an otherwise healthy girl of fourteen, preceded by violent headache and other symptoms indicating grave cerebral disturbance, but in which perfect recovery followed. He classed her case with these examples of optic neuritis, referred to by Juler, occasionally met with in young girls, the cause assigned being some menstrual disturbance, the presence of which, however, careful inquiry fails to elicit. Usually the neuritis is preceded by severe head-

[1] Inaug. Diss., Berlin, 1885. Abst. Centralbl. f. Prakt. Augenheilk., p. 223, 1885.

[1] Inaug. Diss., Berlin, 1881. Abst. Nagel's Jahresbericht, xii. Jahrgang, p. 305.

[2] Wjestnik Ophth., 1885, p. 273. Archives of Ophthalmology, vol. xv. p. 249.

[3] Klin. Monatsbl. f. Augenheilk., xxi. p. 298.

[4] Dela névrite optique rheumatismale, Paris, 1886.

[5] Amer. Journ. of Ophthalmology, July, 1884.

[6] THE MEDICAL NEWS, August 7, 1886.

[7] Amer. Oph. Med. Soc., 1888. N. Y. Med. Journ., Oct 6, 1888.

[8] Trans. Oph. Soc., U. King, vi. pp. 361–368, 1886.

[9] N. Y. Med. Journal, Feb. 5, 1887.

ache, and the prognosis is unfavorable. No further reference to the many cases of neuro-retinitis described in connection with irregularities of the menstrual functions need be made.

Hirschberg[1] has seen several instances of primary optic neuritis, whose course is very typical. The disease is divided into three stages: the first, characterized by great visual disturbance, with slight ophthalmoscopic appearances; the second, by diminution of the visual disturbance and very marked inflammation of the disk; and the third, usually by almost complete recovery, with pallor of the disk. The cases mostly occur in women, but are not connected with derangement of the sexual functions. Partaking somewhat of the nature of such cases, but not without a history of exposure as the exciting cause, is the subject of this communication.

Mrs. W., aged forty, consulted me July 11, 1888, because for a week past she had suffered from neuralgic pains in and above the eyes, most marked upon the right side. Bright light was distressing and pain followed when the eyes were rolled upward; slight tenderness was apparent when pressure was made upon the right globe. The vision in each eye was $\frac{5}{\text{VII}\frac{1}{\text{IV}}}$, the amplitude of accommodation 3.5 D.; there was high insufficiency of the internal recti, so that a divergent squint was evident when the eyes attempted to fix a point 15 cm. distant. The fundus of each revealed no gross lesions, save a slight retinal haze around the upper and lower edges of the right disk, the deeper layers of which were gray. The macules were normal and the refraction appeared to be a simple hypermetropia of 1.5 D. In the absence of any general derangement the peri-orbital pain was attributed to eye-strain, and atropia drops were ordered for the purpose of measuring the refraction error. The correcting glass proved to be + 1.5 s. and with it normal vision $\left(\frac{5}{\text{V}}\right)$ was acquired. During the application of the atropia the neuralgia disappeared. The drops were discontinued and the patient directed to return in two weeks.

During the measurement of the refractive error, the patient, on several occasions stated that although she saw the same number of letters with the right eye that she did with the left, she failed to see them with the same distinctness; but no changes at this time were present in the fundus. This indistinctness gradually assumed the appearance of a definite, dark area in the field of vision, the peri-orbital pain returned, and five days after the last ophthalmoscopic examination had failed to discover any changes in the disk or retina, she returned with the vision sunken to ability to count fingers and well-marked right-sided optic neuritis. All edges of the disk were woolly and its upper margins entirely hidden, while a flame-shaped hemorrhage was situated above and to the inner side. The apex of the swelling was + 3. D., the vessels were about normal in size, and the macula free from disease. The pupil was of medium size and acted sluggishly to light and shade. A few days before this time she had gone on an excursion with her children, became much overheated, and had afterward waded about in a neighboring brook. It was in the evening of this day that the neuralgia returned, the definite dark area appeared in the field of vision, and shooting pains attacked the deep muscles of the thighs.

Further examination proved an entire absence of any symptoms pointing to brain disorder; the heart and lungs were normal and the patient was not anæmic, there had been no suppression of the menstrual flow and this function was natural; no active uterine disease existed, except a slight prolapsus which was not then under treatment. The urine was free from albumen, sugar, and tube casts, and the last recent illness, several years before, had been an attack of peritonitis from which a good recovery had resulted. Dr. James Tyson, who saw the case in consultation, confirmed the accuracy of these examinations. Syphilitic infection and the action of lead or other poisons were carefully excluded. The vision continued to sink, and on the following day was reduced to faint quantitative light-perception and the disk, if anything, was slightly more swollen. The temple was freely leeched and the patient directed to take fifteen grains of salicylate of sodium before each meal, and seven and a half grains of iodide of potassium, with one twenty-fourth of a grain of bichloride of mercury after each meal.

Three days later, or on July 30th, the vision was slightly improved to the ability to see the hand move and the pain was distinctly better. The medicine was continued and small fly blisters ordered placed upon the temple. August 1st, the salicylate of sodium was discontinued, but the other medication continued, vision improved and large letters (Sn CC) were faintly recognized. August 6th, marked improvement, V.= $\frac{5}{\text{XXXV}}$; edges of the disk visible all around and only a faint remnant of the hemorrhage, August 20th, neuritis had practically subsided; V.= $\frac{5'}{\text{X}}$ form and color fields normal in extent; no scotomata; ordered one twenty-fourth of bichloride of mercury after each meal. September 9th, V.= $\frac{5}{\text{VII}\frac{1}{\text{IV}}}$, disk pallid, and all traces of the neuritis had disappeared.

In the absence of any symptoms pointing to cerebral disturbance, with no uterine disease save a slight prolapsus and the history of a leucorrhœa no longer active; with the menstrual functions normal; with a healthy circulatory apparatus and the urine free from albumen, sugar, and tube casts, and with the direct account of overheating and exposure, we may fairly conclude that this was an instance of genuine, acute optic neuritis.

The history shows that before any ophthalmoscopic changes were evident, and before there was any positive diminution in visual acuity, the field of vision was invested with a haze which afterward assumed a definite, dark form, probably coincident with the first appearance of the inflammation around the papilla and the loss of sight. Hence it is evident that the attack was in process of formation and was precipitated by the wetting of the feet and sudden cooling after an overheating.

Cases of optic neuritis apparently due to exposure, as has been pointed out by Leber and others, are mostly monocular; and rheumatism, perhaps upon insufficient evidence, has been cited as the cause. Gowers,[1] writing

[1] Centralbl. für Prakt. Augenheilk., Nov. 1887.

[1] Medical Ophthalmoscopy, 2d ed., p. 230.

upon this point, says: "Neuro-retinitis has been loosely ascribed to rheumatism, but only on the ground that it has sometimes appeared to be due to cold." Rheumatic inflammation at the back of the orbit, however, according to the same author, may damage the optic nerve. Michel,[1] commenting upon a reported case of acute peripheral retro-bulbar neuritis, remarks that he has never observed a "rheumatic" neuritis and considers the assertion of such as a mark of ignorance of the causes especially operative in the production of inflammation of the optic nerve. Hansell (*loc. cit.*) thinks "that a true rheumatic inflammation of the fibrous coat of the nerve between the optic foramen and the sclerotic" quite possible, but owing to the infrequent opportunity for section and examination admits that "our pathology is, at best, speculative." The central scotoma which existed in this and similar cases denotes an affection of the sheath of the nerve extending into its substance, not, as Hirschberg remarks, as would have been supposed before the macular fibres were discovered, a central inflammation extending outward.

The prognosis depends to a certain extent upon the site of the lesion and the termination may be favorable, as in the case reported, or a permanent atrophy of the disk may result. Hirschberg (*loc. cit.*), in his cases of primary optic neuritis, has found usually that the second eye is attacked; the interval may be days, or weeks, or months. Three of his cases illustrate this fact. A woman, aged forty-two, suddenly lost the sight of the right eye; in six days from the beginning of the attack this was well, but the left eye was attacked and optic neuritis developed; in three weeks recovery had taken place and the fundi were normal. In a second case a woman, aged twenty, had slight temporary loss of vision in the right eye three weeks before coming under observation for loss of vision in the left, which came on eight days before. Four months later she came with the right eye similarly affected, while the left had practically recovered. A third instance was that of a peasant girl, aged seventeen, who had her right eye attacked in 1878, recovered, and in 1884 her left eye was attacked, which also recovered.

The treatment has already been discussed. Leeching of the temple, followed by blisters, diaphoresis, together with the salicylates and iodide of potash, yield the best results. Improvement may take place before the remedies have time to take effect.

NEWS ITEMS.

The Washington Obstetrical and Gynecological Society at its annual business meeting, held October 19, 1888, elected the following officers for the ensuing term:

President.—Joseph Taber Johnson, M.D.

Vice-Presidents.—D. Webster Prentiss, M.D.; W. W. Johnston, M.D.

Treasurer.—George Byrd Harrison, M.D.

Recording Secretary.—Samuel S. Adams, M.D.

Corresponding Secretary.—G. Wythe Cook, M. D.

Corrigendum.

STERILIZED MILK.

In Dr. Baruch's note in our issue of last week, page 486, the temperature which will sterilize milk should have been stated as 266° F.

[1] Nagel's Jahresbericht, xvii. Jahrgang, p. 381.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 23 TO OCTOBER 29, 1888.

FORWOOD, WILLIAM H., *Major and Surgeon* (U. S. Army, Fort Snelling, Minnesota).—Is granted leave of absence for one month, on surgeon's certificate of disability.—*S. O. 100, Headquarters Department of Dakota, St. Paul, Minnesota,* October 20, 1888.

WOLVERTON, WILLIAM D., *Major and Surgeon.*—Is relieved from duty at Fort D. A. Russell, Wyoming Territory, and will report in person to the commanding officer Fort Douglas, Utah Territory, for duty at that post.—Par. 16, *S. O. 248, Headquarters of the Army, A. G. O., Washington,* October 24, 1888.

By direction of the Secretary of War, the leave of absence granted JOHN W. WILLIAMS, *Major and Surgeon,* in S. O. 209, Division of the Atlantic, October 4, 1888, is extended one month.—Par. 14, *S. O. 246, A. G. O.,* October 22, 1888.

By direction of the Secretary of War, leave of absence for one month, to take effect on the completion of his present duties, is granted EDWARD C. CARTER, *Captain and Assistant Surgeon.*—Par. 13, *S. O. 246, A. G. O.,* October 22, 1888.

BARTHOLF, JOHN H., *Major and Surgeon* (U. S. Army, Fort McIntosh, Texas).—Is granted leave of absence for one month, on surgeon's certificate of disability.—*Headquarters Department of Texas, San Antonio, Texas,* October 10, 1888.

BROWN, PAUL R., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Sidney, Nebraska, and will report in person to the commanding officer, Fort D. A. Russell, Wyoming Territory, for duty at that post.—Par. 16, *S. O. 248, Headquarters of the Army, A. G. O., Washington,* October 24, 1888.

By direction of the Secretary of War, WILLIAM A. ARTHUR, *Captain and Assistant Surgeon,* is relieved from duty at Fort Bowie, Arizona Territory, and will report in person to the commanding officer Fort Bayard, New Mexico, for duty at that post.—Par. 21, *S. O. 250, A. G. O., Washington, D. C.,* October 26, 1888.

By direction of the Secretary of War, WILLIAM C. BORDEN, *First Lieutenant and Assistant Surgeon,* is relieved from duty at San Antonio, Texas, and will report in person to the commanding officer Fort Ringgold, Texas, for duty at that post.—Par. 11, *S. O. 247, A. G. O., Washington,* October 23, 1888.

PROMOTION.

LORING, LEONARD H., *Captain and Assistant Surgeon.*—To be Surgeon, with the rank of Major, October 9, 1888, vice Meacham, deceased.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING OCTOBER 27, 1888.

SMITH, HOWARD, *Passed Assistant Surgeon.*—Detached from the "Wabash," and granted six months' leave, with permission to leave the United States.

AUZAL, E. W., *Assistant Surgeon.*—Ordered for examination preliminary for promotion to Passed Assistant Surgeon.

WIEBER, F. W. F., *Assistant Surgeon.*—Ordered for examination preliminary to promotion to Passed Assistant Surgeon.

AUZAL, E. W., *Assistant Surgeon.*—After examination, detached from Naval Academy, and ordered to Navy Yard, New York.

URIC, J. F., *Assistant Surgeon.*—Detached from the "Franklin," and ordered to the Coast Survey Steamer "Gedney."

OWENS, THOMAS, *Assistant Surgeon.*—Detached from Coast Survey Steamer "Gedney," and ordered to Coast Survey Steamer "Blake."

BERRYHILL, F. A., *Assistant Surgeon.*—Detached from Coast Survey Steamer "Blake," and ordered to Naval Academy.

HARRIS, A. N. T., *Assistant Surgeon.*—Detached from Naval Hospital, Mare Island, California, and wait orders.

HALL, JOHN H., *Passed Assistant Surgeon.*—Detached from the "Monongahela," and wait orders.

CRAWFORD, M. H., *Passed Assistant Surgeon.*—Detached from the "Vandalia," and ordered to the "Monongahela."

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, NOVEMBER 10, 1888. No. 19.

ORIGINAL ARTICLES.

CONGENITAL BONY OCCLUSION OF THE POSTERIOR NARES.[1]

BY CHARLES H. KNIGHT, M.D.,
OF NEW YORK.

UNTIL recently but little attention has been paid to bony abnormality or outgrowth as a cause of nasal stenosis. Aside from what may be called acute stenosis, from traumatism or fractures involving the skeleton of the nose, bony occlusion is rare. This statement is especially true of the anterior nasal canal, the case described by Jarvis,[2] at last year's meeting of this Association, who referred also to one observed by Delstanche, and one recently reported by Dr. F. H. Potter,[3] of Buffalo, being the only cases which have been noted.

The opinion of Mackenzie,[4] of Baltimore, that "occlusion of the posterior nares is the most common of congenital naso-pharyngeal anomalies," is probably correct, but the proportion of cases in which the obstruction consists of bone is extremely small. The number of cases of congenital post-nasal occlusion, from this cause, found by Dr. Alvin A. Hubbell, and cited in his paper read two years ago before the New York State Medical Association, was then limited to thirteen, including one of his own. Six of these were bilateral (Emmert,[5] 1851; Luschka,[6] 1859; Bitot,[7] 1876; Wilkerson,[8] 1882; Schrötter,[9] 1884; Hubbell,[10] 1886). In the remaining cases the obstruction was confined to the right side in three (Wolff,[11] quoted by Fränkel, 1876; Zaufal,[12] 1876; Pomeroy,[13] 1881); to the left in three (Brandeis,[14] 1881; Sommer,[15] 1883; Zaufal,[16] 1883); and in one case the side affected was not mentioned (Gosselin,[17] 1876).

[1] Read at the Tenth Annual Congress of the American Laryngological Association, September, 1888.
[2] Trans. Amer. Laryngological Association, 1887, p. 222.
[3] Buffalo Med. and Surg. Journal, Sept. 1888, p. 74.
[4] Arch. of Laryngology, New York, July, 1883, p. 161.
[5] Lehrbuch der Chirurgie, Stuttgart, 1853. B. ii. p. 535.
[6] Arch. für path. Anat., xviii., 1859.
[7] Gaz. Méd. de Paris, 1876, No. 36, p. 430.
[8] North Carolina Medical Journal, June, 1882, p. 305.
[9] Monatsschr. für Ohrenheilk., April, 1885, p. 97.
[10] Buffalo Med. and Surg. Journal, December, 1886.
[11] Ziemssen's Cyclopædia, vol. iv. p. 113.
[12] Präger med. Wochenschr., 1876, No. 45, p. 837.
[13] Diseases of the Ear, 1883, p. 201.
[14] Medical Record, New York, Nov. 12, 1881, p. 552.
[15] Wiener med. Presse, April, 1883, p. 476.
[16] Wiener med. Presse, April, 1885.
[17] Gaz. Méd. de Paris, 1876, No. 36, p. 430.

Congenital bony occlusion of the posterior nares may occur as a result of: (1) exostoses, or simple hypertrophy of the osseous structure of the turbinated body, middle or inferior; (2) a ridge, or exostosis, springing from the vomer; (3) an adventitious plate of bone developed from the floor, or the outer wall, of the nasal cavity. The bony impediment may vary in extent from a thin lamella or band, jutting into or bridging over the nasal passage, to a complete impervious wall. The former may occasion little or no manifest trouble, until, in after-life, it becomes the exciting cause of various local and reflex derangements. The latter is far more serious; and, when it exists on both sides, is almost of necessity fatal to the nursing infant.

The first variety (turbinated) is probably the most common, although true exostoses of the turbinated bone are rare, and may be congenital, or a result of disease. It is illustrated by several cases reported, more recently by a case operated on by Weir,[1] at the New York Hospital, who informs me that he has met with another similar case. Each of these was, in a measure, relieved by operation.

The dictum of certain authorities that congenital deflections of the bony septum are unknown may be true if restricted to its thicker posterior portion. While, therefore, it may not be proper to enumerate deflection of the septum among the causes of congenital post-nasal occlusion, thickening or exostosis of the vomer may exist to a degree sufficient to produce the second variety (septal) of nasal stenosis, especially if associated with abnormality of the turbinated bodies. In his work on *Post-nasal Catarrh*, p. 180, Woakes mentions exostosis and deviation of the septum as causing post-nasal obstruction, and refers to several cases, but does not speak of having met with congenital occlusion from these causes.

This condition, usually pathological, may be congenital. An instance of the former may be found in Case III., and of the latter in Case V., in Zuckerkandl's[2] classical work. In the former, the septum presented a bony prominence, which had formed an adhesion with a similar outgrowth from the middle turbinated body, evidently due to a morbid process. In the latter case, a very complicated one, there were several synechiæ, partly membranous and partly

[1] New York Medical Journal, March 12, 1887.
[2] Normale und path. Anatomie der Nasenhöhle, etc., 1882, p. 95.

osseous, due no doubt to faulty development, and not to a pathological process.

The third variety (palatal) of bony occlusion of the nares is of particular interest in connection with the case forming the basis of this paper. In the classification of the last-mentioned authority, no reference is made to it, and I have been able to find only two cases (Luschka, and Bitot) in which its existence was proved by post-mortem examination. Yet careful anterior and posterior rhinoscopy, as well as palpation, and the shape, situation, and character of the bony obstacle seem to establish the presence of this anomaly in several cases reported, as well as in my own case.

The precise origin of the bony wall is more or less a matter of speculation. It is quite probably a continuation of the free border of the horizontal plate of the palate bone, as described by Luschka, or an extension of its vertical plate, as maintained by Kundrat. In an interesting paper on "chronic nasal catarrh," based on the study of a large number of skulls, Harrison Allen[1] refers to one cranium in which the palatal bones sent up a delicate process "nearly half way on either side of the vomer at the posterior nares." He speaks of it as "strengthening the septum," but does not say to what extent it obstructed the choanæ. Possibly this may have been a modified or incipient form of Luschka's plate. In examining more than two thousand skulls, Sir Morell Mackenzie met with four instances of bony synechiæ, which he describes, but it does not appear whether the deformity in any case was congenital or acquired, or that this special form of bony abnormality was present.

The etiology of this condition is obscure. Spencer Watson[2] says that "it is probable that the late development of the bones in this region occasionally favors the formation of tumors and outgrowths in the nasal and orbital cavities, and that some of the malformations of the face are due to arrest of development of these parts during fœtal life." It is not difficult to understand the occurrence of asymmetry of the nasal chambers resulting from want of harmony in the development of the lateral half arches and the median structures, which enter into the formation of the face, as suggested by Allen. It is easy to conceive that this error of formation might proceed to even complete occlusion of the nares. But the deformity under consideration is not *necessarily* accompanied by obvious malformation or lack of development in other respects. It would seem to be rather an excess of development, an overgrowth of bone, resulting from hypernutrition.

A fourth cause of bony occlusion, though not strictly within the scope of this paper, deserves passing notice, namely, osteoma, either intranasal, or, much more commonly, projecting into the nasal passage from adjacent structures or cavities. This rare lesion has been described by Watson, Bornhaupt,[1] Tillmans,[2] and others, and recently a case of orbital osteoma, invading and blocking up the posterior nares, has been reported by Fenger.[3]

Several cases should be added to those already mentioned. Schötz[4] reports a case of a girl, sixteen years old, whose posterior nares were obstructed by diaphragms, probably bony, in consequence of which she had never been able to smell, or breathe freely through the nose. He expected to restore both the olfactory and the respiratory function by an operation. He mentions having found records of eight similar cases of double occlusion. Woltering[5] describes a case of right-sided bony occlusion, in a girl eighteen years old, which he treated with especially devised bone-cutting forceps, but with only partial success.

At the sixtieth meeting of German naturalists and physicians, Hopmann[6] described two original cases of complete bony occlusion of the right posterior naris. The first occurred in a patient eleven years old. An anæsthetic having been given, a passage was cleared by means of a chisel. In so doing the septum was broken, and fracture of the hard palate, with laceration of its mucous membrane, was produced. In consequence, the patient had considerable constitutional disturbance. Rubber tubes, increasing in size, were worn for about two months, and then discontinued. In three weeks the stenosis recurred, and a system of dilatation with Schroetter's laryngeal dilators was begun. Later, ivory plugs were used for nearly three months, being removed twice daily for cleansing. Nine months afterward there had been no narrowing of the passage.

In the second case the author describes the obstruction as being caused by a bony lamina from the free border of the septum, and by an osteoma springing from the floor of the nose. The patient was nineteen years old, and, as in the preceding case, the right choana only was affected. A similar operation was resorted to, and, as before, the vomer and hard palate were fractured. In this instance the cure seems to have been less tardy. A case observed by Schaeffer[7] is referred to, and notes of several cases of incomplete occlusion, partly membranous and partly osseous, are added.

In the discussion on Hopmann's paper, a case of total osseous occlusion *without symptoms* was referred

[1] The American Journal of the Medical Sciences, 1880, p. 72.
[2] Diseases of the Nose, 1875, p. 23.

[1] Arch. für klin. Chirurg., 1881, B. 26, p. 589
[2] Arch. für klin. Chirurg., 1885, B. 32, p. 677.
[3] Journ. Amer. Med. Association, August 11, 1888.
[4] Deutsche med. Zeitung, March 3, 1887, No. 18.
[5] Monatsschr. für Ohrenheilkunde, 1886, No. 20, p. 318.
[6] Archiv für klin. Chirurg., B. xxxvii. 2, p. 235; also, Rev. mens. de laryngologie, etc., January, 1888, p. 28.
[7] Chirurg. Erfahrungen in der Rhinologie. Wiesbaden, 1885.

to by Abertüschen. Keemir reported a case in which he operated with a chisel. He then inserted a gum catheter, and afterward a silver tube. Gottstein stated that he had operated in a similar case with a dental drill, which failed to give him satisfaction.

In reporting Bitot's case to the French Academy of Medicine, Depaul[1] referred to an analogous case in his own experience. No doubt further search would discover additional examples of this interesting malformation.

Two cases of congenital, bony occlusion of the posterior nares have come under my observation, in either case the right side only being affected. One was seen but a few times, and no operation was undertaken; the other submitted to operation, and gave the following history:

G. S., female, æt. eighteen, single, consulted me in May, 1887, for enlarged tonsils, which were removed with the galvano-cautery. In the course of examination, she drew my attention to the fact that she could not breathe through her right nostril. This condition had existed as long as she could remember, but had given her no special discomfort. There was a moderate grade of chronic catarrhal rhino-pharyngitis. There was no impairment of smell, although it cannot be supposed that the right nostril shared in this function. There was no trouble in breathing through the left side of the nose, under ordinary circumstances. When the patient caught cold a discharge of watery fluid occurred from the right nostril, which at other times was entirely free from secretion. For two or three years impairment of hearing in the right ear had been observed, but it is by no means certain that hearing on that side has ever been perfect. Vision was good. The patient's mind was so occupied with her tonsils that her nose would have given her little or no uneasiness, but for the fact that she was aware of being different from other people. She was somewhat subject to headaches, which were usually explained by gastric disorder. She had no cough, and had never had any serious illness. Her general condition was not good. Her complexion was sallow, her cervical glands were enlarged, her flesh lacked firmness, and altogether she had the appearance of being poorly nourished. Her family history was good, except that a younger brother has hypertrophied tonsils.

The external contour of the nose was manifestly unsymmetrical, the right side being more prominent and "thicker," as the patient expressed it. Anterior rhinoscopy showed a very much contracted right nasal fossa, the septum being slightly deviated to the right, and presenting a ridge along the floor of the nose. The turbinated bodies seemed atrophied and their covering of mucous membrane appeared thin and dry. They were notably paler than those of the other side. A probe could be passed along the inferior meatus for two and a half inches. It traversed the middle meatus with great difficulty, on account of the deflected septum, to a similar depth, when it met with firm resistance. The left nasal cavity was unusually roomy, and the turbinated bodies, especially the lower, were large.

Posterior rhinoscopy was not easy, but after considerable training of the patient, the right choana was seen to be completely occluded by a partition, which seemed to be on a plane with the free margin of the vomer. The septum did not appear to be deflected. There was a small amount of adenoid tissue in the vault of the pharynx. The palatal arch was of average height, and nothing abnormal was seen in the oral cavity. On palpation, however, the left palate bone could be distinctly felt to extend further back by fully one-fourth of an inch than the right. By firm pressure it was possible to determine that the posterior margin of the latter was much thicker than that of its fellow. The impression given to the finger was as if the right palate bone had been bent at an obtuse angle. Pressure forward from the naso-pharynx proved the barrier to be unyielding. On pressing firmly with a large blunt probe, passed from the front along the inferior meatus, the patient complained of pain in the roof of the mouth, and during subsequent manipulations sensations were always referred to this region.

With the idea that it might be a membranous wall an attempt was made to puncture with the galvano-cautery, but it soon became evident that I had to deal with osseous tissue. No difficulty was found in perforating the obstruction with the nasal trephine attached to the electric motor. The opening thus made, about one-quarter of an inch in diameter, was subsequently enlarged by means of a revolving burr. There was not much bleeding and pain was not excessive, cocaine, in a twenty per cent. solution, having been applied anteriorly and to the naso-pharynx.

The piece of bone removed in the crown of the trephine was found to be very dense. On one side only the mucous membrane was preserved, it having been burned away anteriorly. The segment of bone measured antero-posteriorly about one-quarter of an inch at its lower, and one-eighth of an inch at its upper margin.

The after-treatment was directed to keeping the parts clean by means of a spray of Dobell's solution, and to preventing closure of the wound by daily passage of nasal bougies.

It is now more than a year since the operation, and the patient is able to breathe through her right nostril, though not always with perfect freedom. Her hearing has not improved, but her sense of smell is somewhat more acute than formerly. The question arises, Whether any other advantage has been gained? Aside from the benefit to her general health from tonic treatment, and to her pharynx following the removal of the tonsils, it must be admitted that nothing has been gained by boring a hole through her nostril. On the contrary, she is rather uncomfortable much of the time from the fact that secretions accumulate and dry in her right nostril, whereas formerly she was not annoyed in that way.

It must be confessed, therefore, that, except in the points mentioned, this patient was more com-

[1] Gaz. méd. de Paris, 1876, No. 36, p. 430. Mackenzie, Schrötter, and others refer to a case reported by "Betts." The name should be Bitot.

fortable with her nose as Nature made it than she has been since she fell a victim to science. Possibly, too, it may be said that the operation is not yet complete, since the right posterior naris is still much narrower than the left. The patient, however, is satisfied with being enabled to breathe through both nostrils, and cannot be persuaded to undergo any more drilling.

The great difficulty in these cases, namely, to keep open the newly made nasal tract, may arise from the fact that sufficient tissue has not been removed, as well as from neglect in the after-treatment. By far the best method of operating, as regards rapidity, accuracy, and thoroughness, is that with the electric trephine or drill.

Should another case of this kind offer itself to me for treatment, my plan would be, unless quite sure of the fortitude of my patient, to give an anæsthetic, and thus be allowed time enough to restore the malformed naris more nearly to its normal dimensions. Various devices have been used to obviate failure of the operation, such as the retention of flexible and of metallic tubes, and the passage of nasal bougies and dilators. In spite of all, in several cases recorded the operation has had to be many times repeated, in consequence of recurrence of obstruction.

In studying this case, two points impressed me with peculiar force. The first was the remarkable tolerance on the part of the patient of a condition involving serious interference with three important functions. In this respect the case seems to be exceptional, since the literature of the subject shows that nearly all similar cases on record had symptoms of more or less consequence, being naturally most severe in case of bilateral atresia. The amount of disturbance which would be likely to ensue from a similar *acquired* condition is in striking contrast.

The second point, a practical one, relates to the testimony gained by examination of the parts with the finger. I would not detract from the importance of rhinoscopy, but certainly, in this case at least, information was obtained by the finger which could not have been given by the mirror.

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THE CLIMATE OF COLORADO AND ITS EFFECTS.[1]

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In the selection of a climate for a phthisical person the great desideratum is, Where may our patients find the purest and most aseptic atmosphere, combined with the other qualities suitable to their individual wants, in which they may spend the maximum of time under the open sky safely and agreeably, and still have those comforts so necessary to an invalid? Colorado affords these conditions to an extent hardly to be found elsewhere, since not only is the climate suitable for a very large class of consumptives, but from the great combination of elevated plains and mountains an invalid may find an all the year climate of infinite variety from which to select, while the large and growing commercial interests offer inducements for a permanent residence, with the very environment proven favorable to the arrest, if not cure, of this malady, phthisis. Thousands of the population of this State, who once belonged to this invalid class, but who are to-day useful, active citizens in the enjoyment of health and strength, attest the truth of these assertions.

The climate of Colorado has been so frequently and well described that it is unnecessary for me to dwell upon it in detail, but before speaking of its effects let me recall its most prominent features, those to which the favorable results are ascribed.

Situated near the centre of the United States, far from any large body of water; extending over four degrees of latitude, and seven degrees of longitude; traversed from north to south by the great Rocky Mountain range and its numerous spurs; with open plains, more elevated plateaus—or parks surrounded by mountains—and secluded valleys at varying altitudes, it offers a most surprising diversity of climate. In summer one may choose between the heated plains and cool elevated mountains, and in winter may, if desired, almost entirely escape the rigors of snow and ice, and find a balmy air and the mild open winter of the south. The portion most interesting to us, because generally proving most favorable for the treatment of phthisis, is that lying to the eastward of the Continental Divide, and consists of open plains stretching away from the abrupt foothills at an altitude of from 4000 to 8000 feet, and the mountain parks and valleys.

The whole region is characterized by rarefaction, purity, and dryness of the air with a very large proportion of clear days and an abundance of sunshine.

The atmospheric pressure varies with the locality, since the elevation is from 4000 to 8500 feet. As in all high altitudes, the air is cool, though on the treeless plains the air in summer becomes much heated by day, but owing to rapid radiation the nights are invariably cool. In winter the mercury often sinks below zero F., but the days are bright and sunny, and though the air may be cool overcoats are often a burden, and one may frequently sit with open doors and windows, and even out-of-doors, with but little extra clothing. The temperature is not equable, but the great range of temperature, which is so marked a feature of all our meteorological tables, must not be compared with the same range in a low damp atmosphere, since, as gauged by the sensations, it is far less, and in practice is seldom found to do

[1] Read before the American Climatological Association, Washington, September 19, 1888.

injury owing to the dry, stimulating quality of the air. While great and rapid changes of temperature do take place, these extreme variations are exceptional.

The purity and aseptic character of the air are decidedly greater than at low elevations, and germs find little pabulum and few places in which to thrive. There are but few large towns, and the distances between them are great; the ranch population is scanty; and the soil is dry, gravelly, and porous to a great depth, and gives forth no noxious vapors: hence there is little chance of even slight contamination of the air by disease germs.

The air is dry. The moist winds from the Pacific are cooled by their passage over the intervening mountain ranges, and the clouds have deposited the greater part of their moisture, most of them are dissipated and few cross the last and greatest range. The annual rainfall is between fifteen and sixteen inches, and the actual humidity is less than in any other portion of the Union, except in the territories of the northern part of the United States during the winter months. The returns of the United States Signal Service show that the mean relative humidity at Denver for the past four years was (100 being saturation) 52.5, 57, 55, and 51.2 respectively; while at New York for the same years, 1884, 1885, 1886, and 1887, it was 73.3, 73, 73, and 66.5 respectively. A more certain test of the dryness of the air is the actual humidity, and from the United States Signal Service charts of the year 1882, we find that during the spring of that year the air contained an average of 1.5 grains of moisture to the cubic foot, during the summer 3.5 grains, during the autumn 1.5 grains, and during the winter but 1 grain, and the reports of subsequent years show very nearly the same averages, demonstrating the atmosphere of the region about Denver to be the dryest of any portion of the United States, with the exception noted.

The greater portion of the rainfall of the year takes place during the spring and summer months, in the daily afternoon showers, rainy days or continuous rains being exceedingly rare. The snowfall during the winter is light and the snow lies upon the ground but a short time, melting and sinking into the ground rapidly under the warm rays of the sun. Fogs and mist are almost unknown.

Winds at certain seasons of the year are common, and in towns and in those portions of the State having adobe soil, frequently raise quantities of dust. They are disagreeable and annoying, but they bear with them no peculiarly injurious effects beyond mere physical discomfort when exposed to them.

The phenomenal amount of clear, pleasant weather, with bright sunshine, especially during the winter months, is the most striking feature of the climate to a newcomer. By again examining the reports of the Signal Service for Denver for the years 1884, 1885, 1886, and 1887, we learn that there were 39, 57, 40, and 40 cloudy days respectively for these years, and it is fair to presume that on very many of these cloudy days the sun shone, since other reports compiled from the same source from the observations of fifteen years, state that there were on an average of 345 sunny days each year during this period, while the yearly average of cloudy days was 56. We also find, by referring to the same records, that the mean cloudiness is less here than elsewhere in the United States, except in Arizona during the spring, and Central California during the summer. In winter the cloudiness is less than during any other portion of the year, and the proportion of clear, sunny days is consequently greater. Owing to the clearness and dryness of the atmosphere, the sun's rays lose less heat in their passage to the earth than in low, damp climates, with the result that the open air of winter on clear days, though cool, perhaps even cold, is agreeable and comfortable with light wraps while in the sun, and pleasanter than the artificially heated atmosphere within doors.

The differences between the climate of the plains and that of the mountain parks and valleys are such as usually obtain between mountains and an open country, though more pronounced. There are few places in the mountains where meteorological records have been kept, but in comparing Georgetown, situated in the mountains, some 3300 feet greater elevation than Denver, and 8500 feet above sea-level, it is found that the mean annual temperature is from seven to eight degrees lower. For the year 1887 the mean annual temperature of Denver was 50.4° F., of Georgetown, 42.3° F. The summers are decidedly cooler, the thermometer rarely registering 85° F. in the shade during the warmest days, while at night the mercury falls to, from 65° to 60° F., and often lower. The mean temperature of Denver during the summer months of 1887 was 69.1° F., of 1888, 68.4° F.; of Georgetown, for the same periods, it was 58.3° F., and 59.1° F. respectively.

The winters in the mountains are more prolonged. The temperature on sunny days is not so high, and though the mean temperature is less the mercury does not sink to so low a point during the prevalence of northerly winds. The extremes of temperature are, therefore, not so great. During the winter months of 1886 and 1887 the mean temperature of Denver was 33.5° F., of Georgetown 27.2° F.; during the winter months last past the mean was 31.6° F. at Denver, at Georgetown 26.4° F.

The rainfall is a trifle less, and the number of cloudy days is slightly greater in the mountains than on the plains. During the year ending June 30, 1888 (the only one during which such a record was kept), there were but twelve days on which the sun

did not shine in Georgetown; four of these were during the winter months. The purity of the air is, I believe, greater in the mountains than on the plains.

I have thus briefly and imperfectly sketched the general characteristics of the climate of Colorado, those to which so many consumptives owe their lives and restoration to health, and which render the mortality of this State less than that of any other, notwithstanding the numerous deaths from phthisis of persons coming within its borders when all chance of benefit is irretrievably gone, and who reach our wondrous climate only in time to die.

In Colorado we have a remarkable combination of those climatic conditions most desirable for an invalid wishing to live as much as possible out-of-doors—a dry, bracing, stimulating atmosphere of great purity, of which rarefaction is a most important element, together with a maximum of pleasant weather and an abundance of light and sunshine, especially during the winters. Not only is it possible for an invalid to spend the whole summer and fall in camp, but when winter comes and it is desirable to be under more secure shelter, the patient is still enticed out under the open sky to engage in out-door amusements and occupations by the warm sunshine and balmy air, with a soil free from mud and dampness.

There can be no uncertainty as to the desirability of such a rare climate in phthisis; the difficulty is simply in determining and eliminating those cases not suitable for treatment at high altitudes. The class of phthisical patients deriving benefit here is a very large one, but there are some who do not improve and should never be advised to test the effects of the climate of great elevations.

After several years spent in the practice of medicine near sea-level on the Atlantic Coast, and coming to Colorado an invalid, the effects of high altitudes in health and disease have been somewhat striking, and have necessarily occupied a share of my attention during my five years' residence. My observations have been made mainly in Georgetown, a town situated in a deep mountain valley 8500 feet above sea-level, and my further remarks will relate solely to the effects of this considerable elevation.

The most marked effect of the climate of this altitude is due to the rarefaction of the air, and upon persons coming from near sea-level, while often very decided, differs greatly according to individual peculiarities, some scarcely noticing the change, while others are made decidedly ill. The most noticeable effects are slightly increased frequency of inspiration, and perhaps a feeling of insufficiency of respiration, supplemented occasionally by a sigh, with quickened pulse—generally from six to eight beats per minute—and may be a more forcible beating of the heart; but with the majority of persons there is no other inconvenience than shortness of breath after some exertion, as making an ascent, and possibly a tendency to wakefulness the first night or two after arrival. Rarely, there is a feeling of giddiness, even faintness, with headache, and a light, restless sleep at night, disturbed by troubled dreams.

If the heart is sound, and the lungs all right or but slightly affected, these organs adapt themselves to the new conditions in a few days, and the newcomer notices no effects of the increased elevation, except on considerable exertion.

In fleshy persons, or those with weak heart, the rapidity of the pulse is greater, the palpitation more marked, with perhaps a feeling of faintness, while in those of full habit the color is less fresh, may be a trifle dusky, and they recover their normal condition more slowly. Persons of a nervous, excitable temperament—particularly nervous women—in addition to the symptoms referable to the heart and lungs, complain of a feeling of unrest, nervousness, and unexplained anxiety, with sleeplessness, or, perhaps, a light sleep accompanied by disagreeable dreams. Such persons, and those with a muscularly weak heart, not infrequently faint in making excursions—even in a carriage—to a slightly higher altitude, and I have known instances of fainting even at an elevation of 8500 feet, with no disease of the heart discoverable. Dryness and harshness of the skin, with tendency to chapping of the lips and hands, is the rule with all. The kidneys are less active, the urine is higher colored, and it contains a larger proportion of solids than normal at lower elevations. Even those who have resided at a high altitude for a long time notice the lightness of the air, after an absence near sea-level of but a month or two.

The effects of this great change in altitude, as described, are rarely more than temporary, and give way to a sense of general well-being, strength, and vigor, with buoyancy of spirits. The appetite is increased, the digestive processes become more active, sleep is sound, the functions of the body become more regular, and a feeling of perfect, robust health pervades the system. On the other hand, persons of a high-strung, nervous temperament often feel depressed and exhausted, and do not succeed in shaking off the languor until a lower level is reached. Those coming from malarial districts often develop transient symptoms of malaria shortly after their arrival.

I have never known hemorrhage to occur among newcomers, except in two instances. In both it took the form of hæmoptysis, and occurred in men of sedentary habits, just from their offices near sea-level, who had come to the mountains for a brief holiday. I believe both had disease of the lungs, and one had had several hemorrhages before. One within twenty-four hours, the other within forty-eight hours after arrival, took violent exercise, and went

to an altitude of from 11,000 to 12,000 feet, and feeling exhilarated, and in buoyant spirits, declined to ride, and walked up rather steep ascents. The former spat a few mouthfuls of blood after return to his hotel; the latter some thirty-six hours after his climb, and at night after a second hard day, rowing and fishing, had a very severe attack of hæmoptysis. This man I saw a few days later. For about two months he had been in failing health, had had an annoying, hacking cough, and feverishness in the evenings, and not having his attention drawn to his lungs had attributed his troubles to malaria. When I saw him he was up and about, but had a temperature of 102° F. each evening, respiration 24, pulse 110 per minute, and I found considerable infiltration from lobular pneumonia at the apex of each lung. He returned home, and died within a year.

It may readily be supposed that such novel conditions affecting so intimately the vital processes of the body may cause illness in a person who seriously overtaxes the adaptability of the system. Let me illustrate with two of the most extreme cases I have met with:

A young man, a clerk, living near sea-level, came direct to the mountains. The following morning, noticing a prominent point of rocks overhanging the town, he scrambled up the mountain side some 2000 feet, more than 10,000 feet above sea-level, to get the view, and returned to his hotel late in the afternoon, much exhausted. Shortly after he was seized with a slight rigor, excessive shortness of breath, and severe palpitation of the heart, with cool extremities. He had a slight rise of temperature, almost gasping respiration, and a very rapid pulse. He was relieved in a few hours, and was about on the following morning, though very weak.

A young Englishman, who had always lived near sea-level, and never been to a greater elevation than 400 feet, came direct to Colorado, to an altitude of over 9000 feet. Being accustomed to active exercise, he spent entire days on foot on the mountains, and in visiting mines. After some two weeks of great and unusual exertion, he was seized with a slight febrile action, accompanied by a dry, hacking cough, shortness of breath, pain in the intercostal muscles, and palpitation of the heart, with soreness of the muscles, especially of the chest. The fever practically ceased in twenty-four hours, but the oppression of the chest, and intercostal pain, together with an amount of prostration out of proportion to the slightness of the attack, continued for ten days longer, but were promptly relieved by a short stay at a lower elevation.

What is the effect of residence at this altitude? The average expansion of the chest, as found by examinations for insurance, is greater than commonly found elsewhere, and in children the chest is proportionately larger and well developed. The skin is usually dry, though the insensible perspiration is probably greater than at lower levels in damp climates, and excessive perspiration occurs only after considerable active exercise. The urine is commonly of higher specific gravity than mentioned as normal, from 1024 to 1030.

The population of the mountains, as a whole, I have found to be an unusually healthy one, notwithstanding the fact that a large proportion of the men of this locality work in the silver mines, in bad air, in places dripping with water, and much exposed to cold draughts. The almost entire absence of bowel troubles, the infrequency of serious organic disease, of the more dangerous forms of continued fever, and freedom from all malarial diseases, give as a result a comparatively small amount of sickness. Children are especially healthy.

Occasionally cases of general debility with loss of nervous tone and sometimes with slight anæmia are met among those who have lived continuously in the mountains for a series of years, and though it is often difficult to determine the precise share the altitude may have in producing the undefined symptoms complained of, yet it is found in practice that a change to some lower elevation has a most marked and prompt remedial effect.

The trouble most frequently complained of is so-called biliousness, generally in miners, the result of continued exposure and wet, and is a slight stomach disorder. If the attack is somewhat sharp, there are general malaise and some febrile action, with headache, backache, pain in the limbs, soreness of the muscles, and heavily coated tongue. In more severe attacks the above symptoms are intensified and preceded by rigors, perhaps a slight chill; the temperature varies from 102° to 104° F.; coated tongue, nausea, and vomiting of bile, distress in the epigastric region, with tenderness of the liver, sluggish bowels and dark, offensive stools. These symptoms are usually controlled with readiness if given prompt attention, and the patient is about again in from two or three to ten days. The disease may last a week or ten days in mild form, but shows no uniformity as to duration. It is seldom or never remittent, and if a relapse does occur it does so from a definite, accidental cause.

Such febrile attacks are called mountain fever. It is a mild bilious fever with hepatic congestion.

I have known cases of fever to commence as above described and last four weeks, with no single symptom of typhoid, the temperature varying from 102° to 105° F. a great part of the time, often as high or even higher in the morning than in the evening, without delirium, tongue moist, appetite fair, even good, bowels regular and natural, but little emaciation, and the patient asking each day to be allowed to sit up, believing himself free from fever. Prolonged attacks of fever, however, usually show a few symptoms of typhoid during their course.

Typhoid fever, as I have seen it in the mountains,

has been, as a rule, very mild, lasting from two to three weeks. Commonly the only indications of a typhoid element are a few rose-colored spots about the commencement of the second week, and a transient relaxation of the bowels, with slight and temporary tenderness over the right iliac fossa. The tongue is moist, the appetite fair, and the patient often feels so well that some persuasion is necessary to keep him in bed.

I have met with two cases which proved rapidly fatal. In these the onset was unusually rapid and sharp; dry tongue and ataxic symptoms developed very early, and the fever ran very high. I have seen but few cases with ataxic symptoms and those referable to the nervous system, but these have impressed me with the belief that the occurrence of these symptoms is of far graver import than at lower altitudes.

I have never observed any material difference in the course of the exanthemata. In diphtheria death from sudden heart failure appears more common.

Pneumonia is supposed to be both common and very fatal at high altitudes. I am not of that opinion without qualification, and my experience does not lead me to believe it is of more frequent occurrence among those who are acclimated than at lower levels; indeed, I am inclined to think it less so, and under similar conditions of prudent, careful nursing, no more fatal. I have found it to be neither common nor fatal among women and children. It might be supposed that, owing to the rarefaction of the air, the diminished amount of oxygen it contains, and the increased labor thrown upon the lungs, that the proportion of deaths would be greater; but, to offset this, the air is of great purity and the health of the patient before the attack has generally been so robust that the disease finds the subject well fortified for withstanding the exhausting tendency of an acute disease. Pneumonia is, however, very fatal among those who, having been but a short time in the mountains, have been working hard, subjected to exposure under such unusual climatic conditions, in wet mines or in storms on the mountain sides at great elevations, and are seized with the disease, especially if saturated with alcohol. Living in comfortless, isolated cabins, as many men do, they have no conveniences when sick, and only the very indifferent nursing of comrades or comparative strangers, or of their families under poor surroundings. With these unfavorable conditions the disease is apt to assume a very acute and violent form, and often, when convalescent, they catch an additional cold, when the fatal result they would ordinarily have escaped promptly ensues. These circumstances would be attended by a large mortality in any climate, and here it should not properly be ascribed to the altitude but to the peculiar, rough mode of life and lack of care which were so common in the earlier history of the State, and even now in many frontier settlements and mining camps. These facts have given rise to the general impression of the fatality of this disease at high altitudes without a careful analysis of the causes contributing to the result. In acute lobar pneumonia, for the extent of lung involved, the respiration is from six to eight higher per minute. Hepatization takes place rapidly and the expectoration is usually of a fresher color than at lower elevations.

Acute plastic pleurisy is not infrequently met with, but it has not been my fortune to see a single case of pleurisy, with effusion, during my stay in the mountains. I have had one case of empyema, this as a sequel to pleuro-pneumonia. Bronchitis, in the form of ordinary "colds," is not more common than elsewhere, and seldom proves more than a temporary indisposition and does not tend to linger and become chronic.

Migraine and neuralgias are probably not more common than at sea-level. Chorea among children is rather common. Epilepsy I have but rarely met with, and have not known of the development of a single case. Enlargement of the thyroid gland among women is more frequently met with than in other places, but it never attains any great size. Exophthalmic goitre I have observed several times. Nasal and pharyngeal catarrhs are common and troublesome. Acute and follicular tonsillitis occur as elsewhere. Bowel troubles are, as I have stated, unusual, and are almost invariably promptly controlled by simple remedies. Children coming to the mountains with summer complaint usually recover quickly with little else than careful regulation of the diet. Dysenteric diarrhœas are very uncommon. Sporadic dysentery rarely occurs, and then in a subacute form. Acute dysentery with fever has come to my notice but once, and this was the result of fecal accumulation in a case of chronic constipation, and the patient had had several similar attacks before coming to Colorado. Those cases of chronic Bright's disease I have met with have been difficult to manage, though several cases of the acute form have yielded readily to treatment.

Diseases of the heart give trouble early in their course and grow worse very rapidly. To this I do not recall an exception. I have carefully watched the development and progress of several cases of valvular disease—aortic and mitral—and have noted hypertrophy, but no positive dilatation has taken place, except, possibly, in a case now under observation, it is as yet in its early stage, and has given no clear evidence of its presence. Those with fatty heart, or in whom the heart muscle is weak, are soon obliged to go to a lower altitude.

Acute diseases of an inflammatory character are more acute, as a rule, at high altitudes, and prompt measures are more necessary, while full recovery of

strength from these, and particularly from fevers, is apt to be slow, and is materially hastened by a short stay at a lower elevation.

Owing to the purity of the air and its freedom from germs and microbes, and the activity of the assimilative processes at this altitude, wounds heal by first intention more surely and with less strict attention to antisepsis than at sea level. Cases of compound fracture and extensive wounds act more kindly, granulate and cicatrize more rapidly, and suppuration is far more limited than elsewhere, even when no particular attention is paid to the thorough purification and cleansing of the parts. Traumatic fever is very slight or altogether absent. These facts are particularly apparent to a surgeon when recently from a low damp atmosphere.

A few medicines act peculiarly at high altitudes. Quinine is more active, and it is impossible to prescribe such doses as are given in the east without causing distressing symptoms of poisoning. Many women and children cannot take even the smallest quantity without distress, and I have had adults complain of cerebral excitement, nervousness, and cinchonism, after taking two doses, of two grains each, of the bisulphate at an interval of three hours. I have seen several persons wildly delirious, in whom the drug had been pushed, and the cause of the delirium not recognized. I ordinarily use larger doses of cerebral sedatives, as bromides, and smaller doses of aconite than I was accustomed to use at sea level. Veratrum viride I find comparatively little use for. Digitalis, on the other hand, may be prescribed more freely, especially in those acute diseases tending to enfeeble the heart.

The therapy of the climate of Colorado is scarcely within the scope of this paper and has been so well presented to you by the gentlemen from Colorado who have preceded me, that I will not dwell upon this portion of the subject further than to call attention to the fact, illustrated very many times in my experience, that cases of phthisis frequently do remarkably well in the mountains, at great elevations, when they have failed to improve on the plains, and had all but lost hope of deriving any benefit from that, to them, *dernier ressort*—the climate of Colorado. So many such cases have come under my observation that I am fully convinced that the timidity of advising patients to go the mountains of Colorado is largely unwarranted. Certain precautions as to clothing, exercise, and habits of life must be attended to as elsewhere in high altitudes, and these are particularly necessary in the mountains. Further, in order to reap the full benefit, the rule applicable to all parts of Colorado must be followed —*i. e.*, the stay must not be intermittent, but prolonged, until the improvement may be relied upon as more than temporary, and until the reparative process in the lungs is well advanced. Especially is this true for cases which have progressed beyond the first stage. Patients almost invariably gain the most during the winter months.

In considering the benefits consumptives derive from a residence in elevated regions, we naturally ask, To what peculiar feature may we ascribe its good effects, the purity, the rarefaction, or the dryness of the air? While I am inclined to answer that the beneficial effects are due to a happy combination of the qualities described added to the possibility of spending a large portion of the time in the open air, and believing that the importance of purity of the atmosphere cannot be over-estimated, I am of the opinion that the most potent factor is the rarefaction of the air. All portions of the lungs are fully expanded, increasing the activity of the capillary circulation of the lung and bathing the diseased parts with a dry pure air, favoring the absorption of the morbid deposits, while at the same time the stimulating qualities of the atmosphere, by improving nutrition, call into action the reserve powers of the constitution and restore the tone of the system, enabling it to cope successfully with the local disease.

There are one or two very simple rules which all consumptives coming to high altitudes should understand and observe, since, because of the unusual characteristics of the climate, they are so important that neglect of them will retard recovery, and in advanced cases may destroy the slight chance still remaining to the invalid of receiving benefit from the change, and lead to a fatal result.

1. The approach to elevated regions should be gradual and by easy stages, not in these days of Pullman coaches, to spare fatigue, but in advanced cases with limited lung space, and in those with fever and considerable activity of the disease, to avoid over-taxing the capacity of the lung to adapt itself to the rarefied atmosphere. For the same reason the invalid should, for a time after arrival, either take very moderate exercise or none at all.

2. The residence should be continuous and prolonged.

I am confident, were the first of these rules more generally followed, we should hear far less of the ill effects of high altitudes and be able to note a larger percentage of advanced cases as improved; and if the second was faithfully observed, there would be more cures and fewer relapses.

WATERMELON-SEED IN THE RIGHT BRONCHUS. OPERATION. RECOVERY.

By GREGORY ACKERMANN, M.D.,
of Wheeling, W. Va.

Carrie K., two years old, of Matamoras, Ohio, was brought to Wheeling for treatment, having swallowed a watermelon-seed which lodged in the windpipe four days previously.

The child was bright, playful, and not suffering much inconvenience from the foreign body, except that her voice was husky and she had an occasional violent paroxysm of croupy coughing, attended with attacks of suffocation. On auscultation there was found delayed inspiration over the right lung, the vesicular murmur assuming a cog-wheel-like character. This was apparently produced by the partial closure of the right bronchus.

Emetics had been tried in vain, as well as shaking and thumping the child, while holding her head downward; so the operation of tracheotomy was decided on as the only means of relief.

After the patient was removed to the Wheeling Hospital, with the kind assistance of Drs. Dickey, Schwynn, and Hildreth, I performed, under chloroform anæsthesia, inferior tracheotomy (below the thyroid isthmus). The fat neck of the child, and the numerous vessels in this locality, necessitated a careful and slow dissection down to the trachea. Making an incision about three-quarters of an inch in length, and introducing four loop ligatures through the cartilage, the aperture was held open by an assistant, while I held the child heels up, shaking it and causing expulsive coughing by irritating the trachea with a small feather. These efforts were futile, however, and recourse was had to a pair of curved slender forceps. The child lying on its back, the forceps were gently introduced through the incision, down to the extreme end of the right bronchus, where the seed, which had firmly lodged there, could be just grasped by its end and easily withdrawn. It was an ordinary sized watermelon-seed, somewhat swollen by the secretions.

The tracheal incision was closed by four sutures, and the external tissues drawn together by several sutures, a small drainage tube being inserted into the lower angle of the wound. The dressing consisted of iodoform plentifully sprinkled over the wound, and several layers of carbolated gauze loosely bandaged around the neck.

The little patient recovered quickly from the operation, and was apparently much relieved of the first mentioned symptoms. There was no elevation of temperature, the wound healed by granulations, and in ten days the child was taken home by its happy mother, perfectly well.

WHEELING, W. VA., September 15, 1888.

A CASE OF ATRESIA ANI URETHRALIS. OPERATION WITH RELIEF.[1]

BY A. T. CABOT, A.M., M.D.,
SURGEON TO THE MASSACHUSETTS GENERAL HOSPITAL AND TO THE BOSTON CHILDREN'S HOSPITAL.

THE case I have to report is one of imperforate anus, in which the rectum discharged its contents entirely through the urethra, and in which, finally, by operation, this condition was successfully corrected.

Before proceeding to the account of the case, it may be interesting to consider briefly the development of the organs involved in the deformity, and to see how the separation of the rectum from the urinary passages is accomplished during fœtal life.

In Fig. 1, which is a diagram after Kölliker, we have a representation of the manner in which the allantois folds and divides itself to form the urinary organs and the rectum. At R we see the first indi-

FIG. 1.

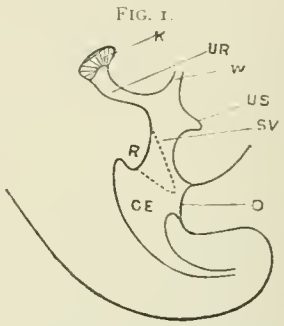

Diagram of arrangement of allantois. K. Kidney. U R. Ureter. W. Wolffian duct. U S. Urachus. S V. Sinus urogenitalis. C E. Cloaca from which rectum is formed. R. Fold from which the perineum is formed. O. Common orifice of urogenital tract and rectum.

cations of the perineum, and the dotted lines show how this fold, as the further development goes on, pushes itself down between the rectum and the sinus urogenitalis to form finally a complete separation between them. Figs. 2 and 3 give some idea of the

FIG. 2

FIG. 3.

Fig. 2. *p* represents the rudimentary penis; *f*, the furrow from which the urethra and anus are to be formed.

Fig. 3 shows the commencing separation of the urethra from the rectum; *f*, rudimentary urethra; *a*, anal orifice.

way in which the perineum comes down and divides the external opening into an anus behind and a urethra in front. And they also indicate how the outer portion of the urethra, with the penis that encloses it, is formed by a folding of the external surface. A failure in the formation of any part of this perineal septum leaves an opening between that part of the rectum and the urethra or bladder. In woman the communication would be with the vagina.

Accordingly, Förster, in his extremely thorough monograph on malformations, makes three separate forms of this deformity. 1. Atresia ani urethralis. 2. Atresia ani vesicalis. 3. Atresia ani vaginalis.

[1] Read before the Association of Genito-urinary Surgeons, Washington, September, 1888

In all of these the anus is imperforate, and the lower end of the rectum opens into the urethra, bladder, or vagina. The opening into the vagina may be quite large and easily provide for the adequate discharge of the feces. On the other hand, however, the communication with the urethra or bladder is always by an extremely small fistulous track, which is too narrow for the sufficient escape of the contents of the bowel, and death is, therefore, a necessary result of this deformity, if not interfered with.

The fistula, when it enters the bladder, does so at the fundus. It may enter the urethra at any point in its course. Förster figures a case in which the rectum ended as a pouch, and from it a long narrow passage led forward close under the skin of the scrotum and along the under surface of the penis to open into the urethra close to the meatus. Ordinarily, however, the communication with the urethra is in the deep part, at or just in front of the membranous portion.

When a case of imperforate anus emptying through the urethra presents itself for operation, it is naturally of first importance to determine where the rectum enters the urinary passages. If this opening is into the urethra, we may hope to find the rectal pouch low down, where it is accessible to operation, and where it is less likely to be surrounded by peritoneum. To decide this point, the fecal and urinary discharges should be watched carefully. If they come separately and not mixed, it may be concluded that the communication is with the urethra in front of the compressor urethræ muscle; while if they come together, intimately mingled, it is evident that they must have become so mixed in the bladder, where they met and were stirred together before they were voided. We can also judge from the ease of the fecal discharges, and from their amount, something as to the size of the fistulous passage.

In the performance of the operation, the first difficulty is to find the end of the bowel. As its contents have been escaping through the urinary passages the rectal pouch does not form a bulging tumor as in an ordinary case of imperforate anus, but may be, as it was in the case to be reported, quite empty. Fortunately, we may be pretty sure that the cloaca lies in the middle line, and that in order to reach the urethra it must come down over the prostate. Acting upon this consideration the surgeon should have a staff in the urethra as a guide, and should take the greatest pains to adhere to the middle line in his dissection, which should be carried back toward the apex of the prostate.

The patient whose case forms the subject of this paper, was sent to me in February, 1888, by Dr. H. S. B. Smith, of Middleborough, Mass. The little boy was then five weeks old, and was a fairly well-nourished child. He showed no other deformity than the one we have to describe.

At the proper site for the anus there was only a slight dimple of the skin, perhaps one-half an inch deep, and not showing, even in its deepest part, any sign of a mucous membrane. If the finger was introduced into this depression, its presence excited a muscular contraction around it which showed the evident existence of a sphincter at that point. During the five weeks of life, all of the feces had passed through the urethra, and, as they had been always fluid, the child had suffered no apparent inconvenience from this abnormal method of defecation.

By careful watching it was found that the urine and feces never came intimately mixed, but that, if they were passed at the same time, there was first a jet of urine then an escape of feces, followed, perhaps finally, by a gush of clear urine again. Also, at times, the urine was passed without any appearance of fecal matter, or the feces appeared without any passage of urine. It was plain from this way in which urine and feces came separately that the bowel must enter the urethra in front of the cut-off muscle, and it was decided to cut down and try to establish an opening into the rectum just behind this point. This operation was done March 7, 1888.

A sound was placed in the urethra to serve as a landmark, and with the patient in the lithotomy position, an incision was made along the raphe and through the dimple which marked the proper site for the anus. After a rather deep dissection close to the prostate, the rectum was found and opened by a longitudinal incision about three-fourths of an inch in length. The edges of this opening were stitched down to the anal depression above described, care being taken to attach it within that part surrounded by the sphincter muscle. The portion of the incision behind the anus was brought together with sutures, the part in front being left open for drainage, in case any urine should leak through the wound.

Fecal matter escaped freely during the operation, and, three hours later, there was a large evacuation of liquid feces through the newly opened anus. For thirteen days all of the feces came by the anus and all of the urine by the urethra. On the thirteenth day a little gas was seen to pass the urethra, and an examination of the anus showed that the parts were almost wholly healed, and that the opening into the bowel was beginning to contract somewhat. This was easily stretched with the finger, and from this time dilatation of it was practised every second day.

Except for the rare escape of a trace of feces by the urethra, and the occasional appearance of a few drops of urine by the anus, everything now went well. After a few days, the mother was taught how to dilate the anal opening, and with instructions to do so every day or two, she was allowed to take the child home.

I heard from them again on August 6th (five months after the operation). Dr. Smith then wrote me as follows: "The anus now seems in quite a natural condition. There is much less resistance to the introduction of the finger than there was three

months ago. Most of the urine passes normally, but a little is seen now and then to pass the anus. There is an occasional stain of fecal matter by the urethra, but only when the child is constipated."

The mother writes that the baby is well and strong, and has not had a day of sickness through the summer.

Whether the communication between the rectum and urethra will finally close spontaneously cannot yet be told. It causes now no inconvenience, and can probably be closed by operation when the child is stronger and the parts larger.

TWO CASES OF GUNSHOT WOUND OF THE ABDOMEN, ILLUSTRATING THE USE OF RECTAL INSUFFLATION WITH HYDROGEN GAS AS A DIAGNOSTIC MEASURE.

By N. SENN, M.D., Ph.D.,

of Milwaukee, Wisconsin;

Attending Surgeon to the Milwaukee Hospital; Professor of Principles of Surgery and Surgical Pathology in the Rush Medical College, Chicago.

Case I.—J. J., sixteen years of age, was out hunting with some companions on Sunday, September 9, 1888, one of whom accidentally discharged his 22-calibre rifle at a distance of about one hundred and fifty feet, the bullet striking the patient in the abdomen. The injury caused but little pain, and immediately after the accident the patient walked about forty yards to a farm-house, where he was placed in bed. From there he was conveyed on a cot, in a farmer's wagon, to the Milwaukee Hospital, some six miles distant. The accident occurred about noon, and he arrived at the hospital at 3 P.M.

Examination.—Boy complains of considerable pain in the abdomen; pulse 80 and soft; his general appearance indicates no serious injury. On undressing him, a bullet wound, with omentum protruding, was found two inches to the right of the middle line, and on a level with the anterior superior spine of the ileum. Left iliac region dull on percussion; and in right, a cracked-pot sound was elicited on percussion. A rectal enema was administered, and was followed by a free fecal discharge, without admixture of blood. (On washing the feces afterward the bullet was found.)

Operation.—Ether, as an anæsthetic; thorough disinfection of abdominal wall; rectal insufflation of hydrogen gas, followed by the escape of bubbles of the gas, within a few seconds, at the wound of entrance, into which had been placed a hæmostatic forceps, the blades separated so as to render the canal patent. The gas was lighted, and after thorough cauterization of the wound by the flame, the flame was extinguished by the application of a wet sponge.

Laparotomy by median incision, eight inches in length, from pubes upward. About a pint of fluid blood in the peritoneal cavity, and hemorrhage continuing from the mesenteric veins at two points of perforation on the mesenteric side of the bowel, and to a less extent from perforations of the mesentery; arrested by ligating *en masse*. Within a distance of four feet, near the middle of the ileum, were found ten perforations, two of which were at the mesenteric border; also four perforations of the mesentery. Another perforation of the bowel was found within four inches of the ileo-cæcal valve on the convex side of the intestine, making so far eleven in all. All were closed by Czerny-Lembert sutures. At two points the perforations were so close together that it was found necessary to invert half the circumference of the bowel on the convex side, thus producing considerable narrowing of its lumen.

Two hours had been consumed in arresting the hemorrhage and closing the eleven perforations, and the patient at this time had become pulseless, and yet it was deemed absolutely necessary to determine beyond all doubt if any more perforations existed by repeating the rectal insufflation of hydrogen gas. On repeating this test it was found that gas escaped freely from the pelvic cavity, without reaching the ileo-cæcal region, showing that at least one more perforation was below this point. The sigmoid flexure was brought into the wound and compressed between the index finger and thumb. Insufflation was again followed by escape of gas, demonstrating that the perforation was below this point. Inch by inch the bowel was examined by this method in a downward direction, until a perforation was found in the anterior portion of the rectum at a point where the peritoneum covering its anterior wall is reflected upon the bladder. This perforation was rendered accessible to direct treatment by an assistant making traction on the colon and by keeping the margins of the wound well retracted by means of a pair of Hegar's retractors. It was closed by five Lembert sutures, with the greatest difficulty, on account of its deep situation and inadequate light, which was furnished by two candles.

From the perforations in the ileum there escaped pieces of green apples and intestinal contents, and from that in the rectum fluid feces.

The peritoneal cavity was freely irrigated with a one-third per cent. solution of salicylic acid. After completion of peritoneal toilet, a glass drain was introduced in such a manner that the distal open end was placed opposite the sutured rectal wound, and the abdominal incision closed in the usual manner.

Whiskey was freely administered hypodermatically during the operation and after its completion, as the patient remained pulseless for half an hour.

Time of operation two and a half hours.

The foot of the bed was elevated and dry heat applied to the extremities.

10 P.M. Temp. 99.5° F.; pulse rapid and weak. About one ounce of bloody serum withdrawn from glass drain.

Sept. 10, 8 A.M. Temp. 99° F.; pulse 126. Clear serum only in the drain; about one drachm withdrawn every three hours. During the day the patient was slightly delirious, and in the absence of the nurse he got out of bed and walked across the ward to another bed.

8 P.M. Temp. 99.8° F.; pulse 144. Some tympanites. Ordered one drachm of turpentine in half a pint of warm water, as an enema, which was followed by free discharge of feces and flatus.

11th. Temp. normal; pulse 104. Natural passage from bowels; delirium continues.

12th. Temp. normal; pulse 96; delirium disappeared. Allowed liquid food in small quantities.

13th. Pulse 72. The contents of the glass drain have a suspicious fecal odor. Glass replaced by rubber drain. Slight diarrhœa, which relieved the tympanites.

14th. A fecal fistula has formed along the track of the drainage-tube. Large rubber tube introduced through the anus, and left in rectum to allow free escape of fluid feces. Fluid injected into fistula does not flow through the rectal tube. Rectum disinfected every four hours with saturated salicylic acid solution.

9 A.M. Temp. 101° F.; pulse 126.

17th. Temp. normal; pulse 108. Free discharge of fluid feces from rectal tube and fistula.

18th. Sutures removed from the abdominal incision; only deep parts united, granulating surfaces approximated by strips of adhesive plaster over an antiseptic compress.

19th. Fluid flows freely from fistula through the rectal tube. No feces have escaped through fistula for twelve hours.

20th. Rectal tube withdrawn, followed by return of fecal discharge through fistula.

Oct. 1. The discharge of feces through the fistula has been gradually diminishing, and has now ceased.

19th. Fistulous track completely closed. Abdominal incision all healed, except a small granulating surface at lower angle.

Patient discharged cured, November 3d.

Remarks.—The subjective symptoms in this case four hours after injury, and after transporting the patient a distance of six miles, furnished no indications whatever of the extent of visceral injury which was found on exploring the abdominal cavity. The rectal insufflation of hydrogen gas at once rendered the diagnosis positive, and pointed out the necessity of treatment by abdominal section. Eleven perforations were found and sutured without much difficulty, but the last perforation in the deepest portion of the pelvis could not have been found by any other means of diagnosis short of rectal insufflation. Had this perforation been overlooked death from septic peritonitis would have been inevitable. Drainage was resorted to in this case, not only from the fact that fecal extravasation had taken place, but also for the reason that owing to the difficulty in gaining access to the rectal wound I feared that the suturing was not as perfect as it should be, and by proper drainage I wished to prevent possible extravasation into the peritoneal cavity from this cause. Subsequent events showed the propriety of this precaution.

Case II.—J. E. (case of Drs. Gudden, Steele, and Gordon, of Oshkosh), eighteen years of age, was out target-shooting with a companion, who, while raising his 22-calibre rifle to his shoulder, accidentally discharged it; the bullet struck the patient in the abdomen. He was about forty feet distant, and almost directly facing his companion. When first seen by Dr. Gudden, within half an hour after the injury was received, he was suffering severe pain in the abdomen, was pale, covered with cold, clammy perspiration, and vomited frequently. He was placed in a carriage and conveyed to his home, a distance of two miles. During the journey, the severity of the abdominal pain was so increased by the motions of the carriage as to necessitate repeated stops.

I saw the patient, with the above-named physicians, October 9th, 4 A.M., twelve hours after the accident.

Examination.—The wound of entrance was found to be at the outer margin of the left rectus about one inch below the level of the umbilicus. Abdomen dull on percussion in left iliac region, pulse 140, temperature 100° F. Penetration of the abdomen was proved by the introduction of a grooved director, which was left in place during the insufflation of the hydrogen gas.

The patient was placed under the influence of chloroform, and during the operation the narcosis was maintained with ether. The abdomen was thoroughly disinfected, and rectal insufflation of hydrogen gas practised to ascertain if any perforation of the intestine existed. Under a pressure of about a half a pound to the square inch, and the use of one-quarter of a gallon of gas, in a few minutes the gas escaped along the groove of the director, and, on applying a match, lighted as it escaped. The flame was now extinguished by a moist sponge, and the abdomen opened by a median incision, five inches in length, extending from the umbilicus to near the pubes.

On exposing the peritoneum at the lower angle of the incision, through this membrane there was observed a structure closely resembling an over distended bladder. That this structure was a distended bladder was improbable as the boy had urinated before the anæsthetic was administered. The peritoneum was carefully incised between two forceps and divided upon a grooved director to the same extent as the external incision, and it was then discovered that what appeared to be an over-distended bladder was a coil of small intestine distended with blood to twice its normal size. The whole pelvic cavity was found filled with fluid blood. On withdrawing the small intestine, five perforations near the junction of jejunum and ileum, and within a distance of three feet, were found; four occurred in pairs on the lateral aspect of the bowel, and one at the mesenteric attachment. All the perforations were disproportionately large to the size of the bullet and would easily admit the tip of the index-finger. The intestine, at the point of injury, was covered with a thick layer of recent plastic lymph, and the parietal peritoneum presented all the evidences of a beginning diffuse septic peritonitis. The intestine, which was over-distended by blood-clots for about three feet, was emptied and irrigated with a one-third per cent. solution of salicylic acid, which was used for constant irrigation during the entire time re-

quired in suturing the perforations, which were closed by Czerny-Lembert sutures.

Further examination disclosed four perforations of the mesentery, from two of which quite profuse venous hemorrhage was still going on. The hemorrhage was arrested by ligature *en masse*, by passing a needle, threaded with fine silk, through the entire thickness of the mesentery, on either side of the perforations.

Rectal insufflation of hydrogen gas was repeated so as to ascertain if any other perforations existed, and the gas after it had been gently forced beyond the highest perforation was made to traverse the balance of the entire intestinal canal by drawing forward loops of the intestine and returning them as examined without further insufflation. This procedure was found entirely satisfactory and practical, as the gas on account of its low specific gravity readily entered the highest point in the prolapsed intestinal loop.

The abdominal cavity was irrigated with salicylic acid solution, numerous coagula removed, the toilet completed, a glass drain introduced into the pelvis, and the abdomen closed.

Duration of operation two hours. Patient collapsed, pupils greatly dilated, and almost pulseless in spite of repeated hypodermatic injections of brandy, which were administered when signs of collapse became apparent, throughout the operation. Enema of a teacupful of warm water and two ounces of brandy. Foot of bed elevated and external dry heat applied.

In an hour and a half he rallied somewhat from the operation, but again sank and died at 3 P.M., eight hours after the completion of the operation.

Post-mortem eighteen hours after death (Drs. Steele, Gudden, Gordon). Circumscribed peritonitis present at time of operating, now diffuse; very little fluid in abdominal cavity; several small blood-clots in vicinity of transverse colon. The perforations were all securely closed, and the bullet was found in the soft tissues to the right of the spinal column, between the fourth and fifth lumbar vertebræ, and near the ascending colon. The bullet though only of 22-calibre was oblong and may thus explain the unusually large size of the perforations.

REMARKS.—This case compared with the foregoing furnishes a strong argument in favor of early operative interference in cases of gunshot or stab wounds of the abdomen in which the existence of visceral lesions can be demonstrated by rectal insufflation of hydrogen gas. In the first case, although twelve perforations were found and sutured, and fecal extravasation had taken place, no evidences of peritonitis were found, and the patient recovered. In this case twelve hours intervened between the time the injury was received and the treatment by laparotomy, during which time a septic peritonitis had developed, the extension of which the operation did not arrest, and from the effects of which the patient died.

MEDICAL PROGRESS.

Intra-uterine Injections of Chloride of Zinc.—FRÄNKEL (*Centralbl. für Gynäk.*, No. 37) confirms the good results obtained by Rheinstädter in the treatment of uterine leucorrhœa with injections of chloride of zinc. Especially in gonorrhœal disease of the endometrium has this method of treatment proved effective, which accords with Fritsch's recommendation of vaginal injections of zinc chloride in vulvar and vaginal gonorrhœa. In inoperable carcinoma of the uterus, also, Fränkel uses these injections, as originally recommended by Sims (solutions of 2 : 3), after curetting and applying the Paquelin cautery. After the exfoliation of the chloride of zinc crust healthy granulations usually appear, with a tendency to rapid and firm cicatrization. The main symptoms, hemorrhage, offensive discharge, and pain, are ameliorated and early recurrence prevented.—*München. medicin. Wochenschr.*, September 25, 1888.

Malarial Orchitis.—Cases of this affection have been reported by Dr. Charvot: The first feature of malarial orchitis, and one that seems to be well marked, is its occurrence only in those who have suffered severely from ague. The onset of the inflammation may be noticed during an attack of fever, often in the night, and quite apart from any injury, urethral discharge, or other exciting cause of an epididymitis spreading from the urethra. The inflammation is of an acute and severe type. In a few hours the part becomes greatly swollen, and the disease reaches its height in two or three days, and then somewhat slowly and gradually subsides and passes away. In some recorded cases the local inflammatory phenomena have undergone daily exacerbations and remissions in unison with the body temperature, but Dr. Charvot has not observed this in his cases. Both the body of the testicle and the epididymis are involved in the inflammation, and there is effusion into the tunica vaginalis. The skin of the scrotum is not implicated, and is only rarely adherent to the subjacent tissues, although there is inflammatory œdema of the cellular tissue of the scrotum. The pain is usually very severe, and radiates from the testicle up to the groin and round the loins. Under treatment the pain and inflammatory œdema quickly subside, but the absorption of the inflammatory exudation in the testicle takes place much more slowly, and is followed by more or less atrophy of the secreting substance of the gland. The disease is accompanied by malaise, headache, neuralgia, pinched face, and anæmia, all marks of severe malarial poisoning.

The treatment of this form of orchitis, happily, is not very difficult. A full dose of quinine should be given a few hours before the rise of temperature, and this should be repeated daily until the patient is continuously apyrexial. The beneficent effect of quinine is quickly seen in the fall of the temperature, the abatement of the pain, the lessening of the headache and malaise, and often in the quick subsidence of the scrotal œdema. If its influence is maintained, the swelling of the testicle shrinks, and the gland becomes smaller and softer, with loss of testicular sensibility. No special local treatment is required. The fever which is always associated with malarial orchitis is not symptomatic: it most often precedes, but is by no means in proportion to, the inflam-

mation of the gland, and it yields to treatment by quinine much more quickly than does the orchitis itself. The liability to wasting of the gland renders it important to recognize the nature of this disease as soon as the patient is attacked by it. As a rule, the diagnosis presents no grave difficulties. From gonorrhœal orchitis it is distinguished by the affection of the body of the gland as well as of its epididymis, by the character of the fever, by the history of the patient, and by the very marked influence of quinine given in full doses. It is more closely like the orchitis of mumps; but where there has been no parotid inflammation to assist in the diagnosis, the intermittent or remittent character of the fever, and the failure of the swelling to undergo rapid absorption after the fall of temperature, are sufficient to distinguish it. The effects of a single large dose of quinine are also so well marked in malarial orchitis that in any doubtful case the therapeutic test is of great value. Dr. Charvot has found more difficulty in distinguishing this form of acute orchitis from an acute tubercular affection; but in the latter the epididymis is markedly nodular, and there is a notable tendency toward suppuration. Although the disease is very little known in England, it is yet one worthy of careful study. Patients saturated with malaria often return home to this country with various manifestations of the disease; and our military surgeons, as well as many private practitioners, may find themselves called upon to treat this affection when residing or travelling in foreign climes.—*The Lancet*, Oct. 20, 1888.

Tincture of Phosphorus in Infantile Asphyxia.—Dr. Farici has obtained such excellent results in the treatment of asphyxia, occurring in the course of broncho-pneumonia in children, that he advises the use of the following formula:

R.—Cinnamon water	. .	100 grammes.
Ethereal tincture of phosphorus	. . .	8 drops.
Syrup of ether	. . .	20 grammes.—M.

The dose is a teaspoonful hourly.—*Lyon Médical*, September, 1888.

Sectio Alta Intraperitonealis.—Under this title Rydygier, of Cracow, in the *Przeglad lekarski*, describes a new method for the removal of large calculi from the bladder, which he has successfully carried out. In the high operation for stone, on the one hand is the danger of peritonitis, on the other that of urinary infiltration. The various methods to avoid the first have not proved successful; as cases of Guyon and Dittel show. Suture of the bladder, as recommended on many sides, does not always prevent the second complication; the suture gives way or the wound fails to heal by first intention and the granulations on the edges of the wound are insidiously infiltrated. The ends of the suture left protruding in the bladder in using Brenner's tobacco-pouch suture may furnish the nucleus for a new calculus. It suggested itself to Rydygier that the readiness with which peritoneal adhesions form might be availed in operations upon the bladder. In the present condition of antisepsis he proposes to open the bladder at a point where it is covered by peritoneum. A series of prefatory experiments upon dogs led to the successful performance of sectio alta peritonealis upon a thirteen year old boy in December last, and upon other older patients subsequently. Rydygier thinks the method available for neoplastic operations upon the bladder and for wounds of the lining membrane. The operative incision always unites by first intention.—*Wiener medizin. Presse*, No. 40, 1888.

Constipation with Hemorrhoids.—

R.—Glycerin	. . . .	60 parts.
Soap	. . . .	10 "
Ext. rhei fluidi	. . .	40 "
Essence of chamomile	. .	10 drops.—M.

Use as an enema three times daily.—*Revue de Thérapeutique*, October, 1888.

Tubercular Meningitis cured with Iodoform Ointment.—Five cases of this disease are reported by Warfwinge (*Arch. di Patol. Inf.*, May, 1888) as cured by this treatment. Whatever errors there may have been in diagnosis, the author thinks it hardly possible that he could have erred in all five cases, though he admits that a differential diagnosis between tubercular meningitis and the less grave variety, during life, is very difficult. In all of the cases reported the plan of treatment consisted in first shaving the hairy scalp and then rubbing in upon the skin a quantity of ointment composed of one part iodoform to five of vaseline, the head being then covered with a tarletan hood with an opening for the face. At each daily friction two grammes of this ointment were used, and the treatment was continued from nine to thirty-two days. Moleschott first advised the use of iodoform for internal diseases in 1878, and he successfully treated three out of five cases of tubercular meningitis by applications of iodoform collodion to the scalp. Nillscez and Souders have also each reported a successful case of this disease treated in the same manner.

The author offers the following suggestions based upon his experience in this connection:

1. Iodoform, which does not contain less than 96.7 per cent. of acid, is nearly insoluble in water and in blood-serum, and cannot penetrate the animal economy except through the medium of fatty substances with which it may be combined.

2. It is probable that when it is applied by friction it is received into the subcutaneous adipose tissue, which acts as a vehicle to its transmission. According to Binz, it is broken up, with the liberation of iodine, and this is absorbed and carried along by means of the organic fluids.

3. The iodine, in such cases, will act upon the protoplasm of the cells, both developing and destroying it.

4. This explanation will apply in regard to the treatment of tubercular meningitis by iodoform inunction; in accordance with which the free iodine would be carried by the lymphatics to the surface of the brain.

5. Whatever value be attached to any particular method of rubbing in the iodoform in tubercular meningitis in children, it would seem as if the subject were worthy of the serious attention of the profession.

6. Future experience may show that more rapid results may be obtained by some modification of this method than have thus far been reported. On the other hand, the prolonged use of iodoform is not followed by any accident.—*Archives of Pediatrics*, November, 1888.

The Treatment of Acne.—Dr. Isaac, before the Berlin Medical Society (*München. medicin. Wochenschr.*, No.

39, 1888), related the method of treatment of acne at the clinic of Lassar. The following ointment is applied to the affected parts with a spatula or stiff brush, remaining for a half hour or an hour:

R.—Beta-naphthol . . . 10 parts.
Sulphur. præcip. . . . 50 "
Sapo virid.,
Vaselin. flav. . . . āā 20 " —M.

On the following day, irritation and desquamation are apparent, which are completed at the end of a week. Slight irritation, which occurs at times, is relieved by the use of a drying powder. Oesterreicher has proposed a modification of this ointment which is particularly useful in obstinate cases. It consists in the addition of ten per cent. of camphor and a reduction in the amount of sapo viridis and vaseline to five per cent. This ointment should remain but a quarter of an hour. Isaac yet recommends a paste of resorcin:

R.—Resorcin . . . . 2.5 to 5 parts.
Zinc. oxid.,
Amyli . . . . āā 5 "
Vaselin. flav. . . . 12.5 " —M.

This paste may remain during the day and night, and on the following day is removed with cotton or oil. In about twenty patients thus treated no irritation occurred. The cure is speedy, occurring often in three to five days. —*Medicin. Chirurg. Rundschau*, October 1, 1888.

Salicylate of Soda in Pruritus.—Icard reports the case of a patient who had suffered nine months from intolerable itching of the skin, and had tried remedies innumerable, who was speedily cured by the internal administration of forty-five grains of salicylate of soda daily.—*La Gazette Médicale.*

Antipyrin Rashes.—Dr. C. C. Claremont, at a meeting of the Southeast Hants District Medical Society, read a paper on antipyrin rashes, in which he described two cases which had occurred in his practice during the course of enteric fever. In the first, ten doses of fifteen grains had been given in the course of ten days when the eruption appeared. It came out simultaneously on the abdomen, thorax, back, and limbs in the form of papules, darker, larger and more solid than the spots of enteric fever. There was a considerable resemblance to measles. The eruption developed into enormous erythematous blotches, with much infiltration, their vivid red color being removed by pressure, leaving faint yellow pigmentary discoloration. The rash began to subside on the sixth day, and on the tenth day was only represented by faint coppery maculæ, resembling an old syphilitic eruption. Antipyrin was omitted on the appearance of the eruption. In the second case the drug had been given in fifteen-grain doses, generally twice a day, and omitted altogether for four days. The enteric exanthem had been unusually copious. On the twentieth day of the exhibition of the drug there was a papular erythematous rash on the extensor surfaces of the arms; this spread to the flexor surfaces, and also affected the calves. The antipyrin was omitted. On the fourth day the rash had almost gone, leaving only slight redness and desquamation. The patient had a relapse of fever, and was again treated with antipyrin without suffering from a return of the eruption.

Dr. Claremont stated that antipyrin rash generally was of the papulo-erythematous type, and began on the extensor surfaces of the elbows and knees. It had been described in one case as commencing on the face, and in another as extending to the mucous membranes. Once vesicles had been present. Its most constant characters were its bilateral symmetry and its duration of about five days, irrespective of the continuance or withdrawal of the drug. The entire absence of subjective symptoms was exceptional. A scarlatiniform rash had been mentioned, but Dr. Claremont had been unable to ascertain that it was more than a transient flushing, such as is produced by belladonna.—*British Medical Journal*, October 27, 1888.

The Treatment of Gonorrhœa.—Ehrmann (*Centralbl. für die ges. Therap.*, No. 9, 1888) recommends three per cent. solutions of boric acid or resorcin as the mildest disinfectant injections in the early stage. In the case of resorcin, the injection is made every two or three hours. In general, more than three injections a day are unnecessary. The frequent application of the nozzle of the syringe excites mechanical irritation; and it is not always possible, with frequent injections, for the patient to urinate previously sufficiently to wash out the pus in the urethra. On account of its comparatively high price and its ready decomposition, resorcin is rarely used. Most frequently sulpho-carbolate of zinc is ordered, which exists in colorless, transparent, tabular crystals, efflorescent in the air and slightly soluble in water and alcohol. Though the sulpho-carbolate is a weak astringent and disinfectant, strong solutions are not begun with. As soon, however, as the second portion of urine passed is clear, a solution of sulpho-carbolate of zinc, one part in two hundred, is used. From week to week this is increased to four or five parts in two hundred. Rarely is it necessary to use six or seven parts. This method of treatment has furnished excellent results.—*Medicin. Chirurg. Rundschau*, October 1, 1888.

Treatment of Dyspepsia.—Dujardin-Beaumetz divides dyspepsia into three classes: that caused by excessive secretion of gastric juice, that caused by a deficiency of secretion, and that depending on sympathetic troubles. In that where secretion is deficient, he gives pepsin, toasted bread, *bouillon*, powdered beef, and hydrochloric acid:

R.—Acidi hydrochlorici . . . 4 parts.
Water . . . . . 1000 "
A wineglassful at the ending of meals.

When the secretion of the gastric juice is excessive, the diet is principally vegetable, though slightly cooked eggs are allowed.

In dyspepsia due to sympathetic troubles the diet is strictly vegetable.—*Révue de Thérapeutique*, October 15, 1888.

For Hyperhidrosis of the Feet.—

R.—Acidi chromic. . . . 1 part.
Aquæ . . . . . 100 parts.—M.

Saturate a pledget of lint with this solution and place between the toes.—*Le Progrès Médical.*

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's address, No. 1004 Walnut St., Philadelphia.

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SATURDAY, NOVEMBER 10, 1888.

GLYCERINE CLYSTERS.

IT is now about a year since glycerine, which has been employed by internal administration for a long time with more or less effect for the relief of constipation, was first recommended for this purpose in the form of enema. Anacker's so-called minimalclysmata (*Deutsche med. Wochenschr.*, p. 823, 1887) and Unger's microclysmata (*Pharmaceut. Centralhalle*, Berlin, 1887, 42), described nearly at the same time, immediately attracted the attention of practising physicians throughout the world. Numerous clinicians have reported the results of their use of glycerine in this manner in hospital and private practice. It is obvious that a condition so influenced as is constipation by individual peculiarities, habit, mode of life, diet, drink, and exercise; a condition frequently in itself a symptom of constitutional or of local disease, is sure to yield uncertain results when subjected to investigation by the numerical method. We may, therefore, reasonably demand more than mere statistics of successes and failures following the administration of minimal clysters of glycerine from those who, as von Vamossy, Seifert, Reisinger, Boas, and Mayer, of Wilkesbarre, have published accounts of their experience with this treatment.

Ullmann, of Vienna (*Centralblatt für die Gesammte Therapie*, August, 1888), has investigated this method of treating constipation with regard to the following points: 1, the general condition of the patient, with special reference to the disease from which he suffered, the state of the digestion, the presence or absence of habitual constipation and the objective phenomena relating to the intestinal canal; 2, the dejections, as regards amount and consistence; 3, the time elapsing between the administration of the enema and the effect; 4, the subjective sensations of the patient, as regards abdominal pain, local irritation, and increase of previous pain; 5, unusual manifestations, as colic, mucus or blood in the dejections; and, finally, 6, the time and consistence of the next following spontaneous evacuation.

Regarding quantity, the result was variable. After 226 injections, the discharge in 71, or 34.4 per cent., was abundant; in 103, or 45.5 per cent., it was incomplete; in 52, or 23.1 per cent., there was either no result or a mere scanty intestinal secretion mixed with the injected glycerine. It was further found that in females and in persons suffering from a tendency to habitual constipation and after repetitions of the treatment the result was in general less satisfactory than in the case of males, in mere transient constipation, as, for example, that occurring in fevers, and in single or infrequently repeated administrations of the glycerine.

The consistence of the discharge was, in 145, or 83 per cent., of the 174 cases in which the treatment was effective, hard, the stools being either formed or composed of masses of scybala; in 22 cases, or 13 per cent., the stools were mushy and unformed; in only 7 cases, or 4 per cent., were they watery. The last occurred in patients subject to diarrhœa.

Subsequent constipation lasting, when untreated, five or six days, occurred in 68 of the 174 instances, 39 per cent. Subsequent diarrhœa occurred in 6 cases, 3 per cent. These were individuals suffering from visceral tuberculosis. And in 3 of them, *post-mortem* examination revealed the existence of tuberculosis of the intestines.

Painful sensations before, during, or immediately after defecation were complained of in only 5 instances—3 cases of recent parametritis, 1 of retroversion of the uterus, and 1 of chronic tuberculous peritonitis. Careful inquiry, however, elicited the fact that a trifling burning sensation in the anus was not infrequent after defecation, but that it usually subsided in a few minutes.

The infrequency of borborygmi, which were spoken of by only 9, or 4 per cent., of the patients, Ullmann ascribes to the same cause as the non-escape of flatus,

namely, the failure of the intestine above the rectum to participate in the response to the activity of the glycerine.

It is in this connection worthy of note that in a majority of the cases in which the glycerine enemata failed, rectal examination and abdominal palpation showed on the one hand a relaxed and atonic condition of the lower bowel; on the other hand, an upper portion of the intestinal tract to be the seat of the fecal accumulation.

In such cases large enemata of water or purgatives administered by the mouth were followed by more or less copious evacuations. The failure of glycerine is explained by the peculiarities of its action. This Anacker ascribes to the powerful irritating effect of the glycerine, due to its avidity for water, upon the mucous membrane of the rectum. This irritation causes a local hyperæmia with fluxion to the mucous membrane and reflex intestinal peristalsis. Reisinger, who found that other substances having avidity for water, as, for example, concentrated saline solutions, gave negative results, concludes that it is not this property of glycerine, but some other peculiar chemical attribute of that substance to which its efficacy in this respect must be ascribed. Unger holds the opinion that the glycerine produces its effects by reason of the profuse hypersecretion which it provokes; and in this opinion Ullmann coincides. The last observer, however, believes that the peristalsis excited is restricted to the lower portions of the large intestine. This opinion is based upon the almost invariable failure of the administration when the rectum is either empty or relaxed, upon the absence of borborygmi, upon the rare occurrence of flatus or colic, upon the immediate cessation of tenesmus so soon as the glycerine has been voided, and, finally, upon the infrequency of repeated liquid evacuations.

As a rule, the action of glycerine is prompt, the result following, in the large majority of instances, in from three or four to fifteen minutes. The dose administered varies from 3 to 6 grammes (that is, from 45 to 90 minims). Ullmann concludes that glycerine thus administered exerts a specific action upon the lower bowel, an action unattended by unpleasant sensations or unfavorable influences; that it is especially available when it is desirable to evacuate the lower bowel promptly, as before surgical operations, in accouchement, for purposes of rectal and vaginal investigations and the like. This method is also available when it is desirable to empty the lower bowel without exciting extensive peristalsis, as in cases of internal hemorrhage, hæmoptysis, painful affections of the abdomen, or when, for any reason, it is undesirable to change the position of the patient in bed. In intestinal obstruction or fecal accumulations in the small intestine or in the upper part of the large intestine, or where constipation is due to acute or chronic catarrhal processes in the small intestine, or to obstruction by gall-stones, glycerine injections are without effect. They are, by reason of the pain which in such conditions they occasion, contraindicated in ulceration of the rectum and painful inflammatory affections of adjacent parts, as acute prostatitis, parametritis, cystitis, and analogous processes.

In habitual constipation, glycerine injections are to be used for occasional relief, never habitually. The amount of irritation which they occasion, as shown by copious serous and mucous discharges containing numerous epithelial cells, indicates a danger that their too frequent use may cause local inflammation or ulceration.

We may add that we have thus employed glycerine with equally satisfactory results in the case both of infants and adults in hollow suppositories of cocoa butter—a more convenient method.

THE DISINFECTION OF INSTRUMENTS AND APPARATUS.

Each succeeding day renders more palpably true the tenet that the fate of a wound, whether it progresses to cure in the natural, ideal manner or wreaks from least to greatest injury upon its unfortunate host, undoubtedly depends, in almost all instances, upon the knowledge, actions, and precautions of the surgeon who may happen to have it in his care. The conscientious surgeon will, therefore, never consider that he has arrived at a millennium of wound treatment until every wound under his hands pursues the most desirable course.

Of the various means at our command for this most invaluable attainment the employment of absolutely sterile instruments and appliances is of import secondary to none. The most complete series of experiments to ascertain the best methods of rendering instruments surgically clean and innocuous are those which have recently appeared in the *Berliner klinische Wochenschrift*, No 35, 1888, from the pen of Hugo Davidsohn. But whilst the deductions which are corroborated by these valuable experiments have long been familiar to us, still they possess especial merit and value in positively deducing

by the only true and scientific method an absolutely reliable, yet safe and simple, process of rendering our appliances free from all varieties of living bacteria and spores.

After experimenting upon an extensive scale and in a most thorough and careful manner, Davidsohn comes to the conclusion that moist heat is by far the simplest, safest, and most certain of microbe- and spore-destroying agencies within our present reach and knowledge. By its application to instruments infected in every conceivable manner he has found that they were invariably rendered sterile in a very short time. In fact, he has proved that all forms of bacteria and spores, no matter where situated—including the hard-dying anthrax bacilli—are invariably deprived of life and harmfulness by simple exposure to moist heat of 212° F. for five minutes. This degree of heat is best obtained by boiling the instruments, apparatus, etc., in a closed vessel—that is, one with a fairly snug-fitting lid, so that the temperature of all portions within may be maintained at an even 212° throughout; for if this precaution is neglected, the upper strata of water will be cooler than those lower down, and only the water actually upon the bottom of the vessel will reach the desired and necessary temperature. Such boiling, if continued for five minutes, he finds amply sufficient for thorough disinfection of even complicated instruments, canulas, catheters, etc., provided that the water fills all canals and hollows and comes in contact with every part.

The perfected process thus evolved which he would recommend for general adoption is as follows: After operation all instruments are to be rinsed well in cold water and scrubbed, and hollow instruments are to be injected and left filled with water. They are then to be actively boiled for five minutes in a closed vessel, care being exercised that no portions project above the surface. Finally, they are to be dried with a sterilized towel and put away in an aseptic place. Before being used again they should be boiled under precisely similar conditions, and used direct from the water when it has become sufficiently cooled. Davidsohn has been unable to discover the slightest harm which this method inflicts upon properly constructed instruments.

THE Boylston medical prize of four hundred and fifty dollars has been awarded by Harvard University to Dr. George H. F. Nuttall, of San Francisco, for a dissertation entitled, *A Contribution to the Study of Immunity*.

THE American Academy of Medicine will hold its twelfth annual meeting at the New York Hospital, 8 West Sixteenth Street, New York, Tuesday and Wednesday, November 13th and 14th.

THE Cincinnati Polyclinic was organized October 31st, with Dr. Charles A. L. Reed, as Dean of the Faculty; Dr. Longstreet Taylor, Secretary, and Dr. R. B. Hall, Treasurer. The Faculty is made up as follows: General Medicine, Drs. Andrew C. Kemper and E. W. Mitchell; Diseases of Children, Dr. H. W. Rover; Diseases of Women, Drs. Rufus B. Hall, Charles A. L. Reed, and Edwin Ricketts; Diseases of the Eye, Dr. Robert Sattler; Diseases of the Throat, Drs. A. B. Thrasher and J. H. Boylan; Diseases of the Skin, Drs. A. Ravogli and Merril Ricketts; Surgery, Drs. Longstreet Taylor and Wallace Neff. The Faculty are almost entirely identified with the three medical colleges, and many of them with the various hospitals of the city. A large clinic has already been built up.

OVER two hundred cases of sickness, caused by eating cheese, have been reported to the Ohio State Board of Health, within a few months, the towns of Urbana and Mansfield contributing about fifty cases each. Grave symptoms, even to complete syncope, appeared in some cases, but there were no deaths.

DR. JAMES CRANE died in Brooklyn, October 13st, aged seventy years, of apoplexy, supervening upon four years of cerebral disease, which had necessitated retirement from professional life for that length of time. He was a native of Newark, N. J., a graduate of Princeton College, a pupil of Dr. George McClellan, and a graduate of Jefferson Medical College in 1839. His medical career was successful and honorable. He was one of the foremost of the health officials of his time, very many of the reforms in the health administration of Brooklyn taking place during his incumbency at the health board. He was twice Commissioner of Health, first holding office in 1866, in the famous and efficient Metropolitan Board which was called into being by the cholera epidemic of that time, and which was the first genuine impulse toward sanitary reform in New York City and vicinity. Forcible and fearless in his official work, he initiated measures for the repression of infectious disease which he lived to see adopted or imitated in many other cities; and his name will be remembered by those who have to deal with the problems of preventive medicine.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, November 1, 1888.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. J. LEWIS SMITH read a paper on

SUDDEN HEART FAILURE IN DIPHTHERIA; ITS PATHOLOGY AND TREATMENT.

There is no other disease, he said, in which sudden, unforeseen, and fatal attacks of heart failure occur so frequently as in diphtheria, and no other disease in which physicians (largely on account of these unexpected attacks of weakness of the heart) are so frequently deceived in their prognosis. In most cases of this kind death speedily occurs even when the medical attendant has made a favorable prognosis a few hours previously. The pulse becomes feeble, and abnormally slow or rapid. It is at first usually slow and subsequently rapid; while the respiration is superficial, and the surface becomes pallid and perhaps slightly cyanotic. In the more favorable cases the patient may rally by active stimulation, and, perhaps, eventually recover, or, after some hours or a day or two of comparative comfort he will succumb to a return of heart failure.

In order to give a clear and accurate idea of the clinical history of sudden heart failure in diphtheria, Dr. Smith quoted, with comments of his own, a number of typical cases occurring in the hospital service of M. de Gassicourt, which he said he had related on account of the completeness of the latter's records. In some of these the heart failure occurred early in the course of the disease, and in others during its later stages. M. de Gassicourt met with one recovery to fourteen deaths, and the case which recovered was of special interest from the fact that the heart failure preceded the palatal and other forms of paralysis, instead of being preceded by them, as is ordinarily the case.

Dr. Smith then proceeded to discuss the cause of this sudden loss of power in the heart in diphtheria. Bouchut and Lagrange attributed it to endocarditis; a hypothesis based on the appearance of the free edge of the mitral valve, and sometimes of the aortic valves in addition, which seem to be roughened as if from the presence of minute vegetations. It is a fact, however, that it is very seldom that a bruit or heart signs indicative of endocarditis are observed during life; while after death the surface of the valves and the endocardial surface are usually found to have undergone no appreciable change, such as endocarditis would be likely to cause.

Moreover, the roughened condition of the edges of the mitral and aortic valves upon which this theory was based, has been found with equal frequency in children who have perished with other diseases, and the late Prof. Parrot had expressed the decided conviction that this condition does not have an inflammatory origin, but is an anatomical peculiarity, which originates in fœtal development. De Gassicourt arrived at the conclusion that "diphtheritic endocarditis is extremely rare, as pathological anatomy and clinical observation alike demonstrate," and Dr. Smith therefore believed this theory to be untenable.

Weakening of the heart's action in diphtheria, and sudden death as a consequence, he went on to say, had with more probability been attributed to granulo-fatty degeneration of the muscular fibres of the heart, consequent upon a prolonged and severe attack of the disease; and he quoted Oertel in support of this hypothesis. Such degenerative changes, if occurring in a considerable proportion of the muscular fibres of the heart, would, he said, inevitably render the contractile power of the organ feeble and perhaps inadequate. Still, if we regarded it as a cause of sudden heart failure, it was such probably in certain cases only; for in most instances the weakening of the power of the heart was sudden and during convalescence, at a period, therefore, when degenerative changes were most likely to occur. In most of the recorded cases the contractile power of the heart did not appear to have been notably weakened previously to the attack of heart failure, as probably would have been the case were degenerative changes in the myocardium the sole or chief cause. Furthermore, in typical cases of sudden heart failure the microscope sometimes revealed a perfectly healthy myocardium after death.

The accident had also been attributed to cardiac thrombosis, and among the most strenuous advocates of this theory was Dr. Beverly Robinson, whose thesis on this subject, published in 1871 in Paris, was alluded to by nearly all recent French writers on this subject. But, as several observers had pointed out, the heart clots were identical in appearance and kind with those found in the heart after death from other diseases; there was every reason for the belief that they occurred during the death struggle, and were not the primary cause of the heart failure, but secondary to it. The opinion of most pathologists was, he thought, explained by de Gassicourt in his clinical treatise, "I have often shown you these clots, and I have enabled you to see that they occur equally in children dead of diphtheria and in those who have succumbed to other maladies, in subjects struck with sudden death, and in those who have not been attacked by any sudden casualty. This objection is in itself conclusive. You have been able to see also that the constitution of these clots does not have any of the characters which the most competent authors have assigned to clots formed during life. They are the clots of the agony."

The theory of deficient innervation, or a true cardiac paralysis, Dr. Smith thought the most tenable. It appeared to be applicable to the largest number of cases and afforded the most satisfactory explanation of those cases in which death occurred during apparent convalescence, when the symptoms were fast disappearing with the exception of the palatal or other paralysis, as well as the most satisfactory explanation, also of the occurrence of those obscure cases in which the post-mortem examination had shown an apparently healthy state of the heart. The theory of an arrested or deficient innervation of the heart, furthermore, furnished an explanation of the occurrence of concomitant symptoms in cases of sudden heart failure, such as vomiting, epigastric pain, and dyspnœa or irregular respiration, since the heart derived its innervation from the same source as the lungs and stomach, viz., through the pneumogastric. He felt justified, therefore, in his classification of the forms of diphtheritic paralysis in making a distinct class

having the designation cardiac paralysis, or, to adopt the French expression, cardio-pulmonary paralysis.

He then went on to speak of the etiology of cardiac paralysis. It was, as had been seen, with few exceptions, associated with, and preceded by other forms of paralysis, and it was probable that, in most cases, it had the same pathology and cause. What was true in reference to the cause and nature of palatal and multiple paralysis, and even of abolition of the tendon reflexes, was probably true of cardiac paralysis. Gubler, in his memoir published in 1860–61, attributed paralysis of the velum and palate to disease of the terminal nerves produced by contiguity, or propagation from the inflamed fauces; but this theory was short-lived, for physicians soon perceived that it was inadequate to explain the occurrence of paralysis at a distance from the inflamed surfaces, while palatal paralysis sometimes occurred after cutaneous and other forms of diphtheritic inflammation in which both the fauces and nares remained entirely healthy. Trousseau considered that the real cause of diphtheritic paralysis was the poisoning of the system by the morbific principle which generated the malady, and believed it doubtful whether its mode of action in producing the paralysis would ever be discovered. The microscopic examinations of Charcot, Vulpian, Roger, Damaschino, Buhl, Pierret, Déjeunè, Oertel, and others, established the fact that the peripheral nerves distributed to paralyzed muscles had, in certain instances, at least, undergone degenerative changes. Pathologists had attributed these lesions to a neuritis, and hence the widely accepted theory that the cause of diphtheritic paralysis is a peripheral neuritis. But anatomical changes equally great had been discovered in the spinal cord, especially in its gray matter, and in the roots of the spinal nerves; so that in some cases it was a fact that central lesions occurred, which were quite as extensive and marked as those in the peripheral nerves. Dr. A. Jacobi, seeing the inadequacy of the various theories to explain all cases or forms of diphtheritic paralysis, wrote, in 1860, "It may be positively asserted that diphtheritic paralysis does not in any case depend on one and the same cause."

Dr. Smith then went on to examine, by the light obtained from clinical experience, the prevailing theory that diphtheritic paralysis results from anatomical changes, peripheral or central, or both, in the nervous system, and to inquire whether it was adequate to explain the paralysis as it commonly occurs, whether cardiac paralysis, or the other forms. The following were some of the objections to it:

1. Cases occur in which carefully conducted microscopic examinations reveal an apparently normal state of the nerves supplying the paralyzed part, and of that part of the cerebro-spinal axis from which the nerves arise. Thus, in three cases of typical cardiac paralysis reported by M. de Gassicourt, which had been described in the early part of the paper, the pneumogastric and its bronchus, examined in one case, appeared normal, and in the three cases no lesion sufficient to cause paralysis was found in a careful examination of the medulla oblongata, the central organ of innervation of the heart.

2. Palatal paralysis sometimes occurs as early as the second or third day of diphtheria, and loss of the tendon reflexes as early as the first day; and it seems improbable that a peripheral neuritis, or anatomical changes in the cerebro-spinal axis, such as to cause paralysis, should occur at so early a date.

3. In its commencement, diphtheritic paralysis often exhibits what Trousseau designates mutability, suddenly shifting from one group of muscles to another. It would seem impossible that there should be a sudden recovery from the paralysis, and then, perhaps, on the following day a recurrence of it, if it resulted from degenerative nerve changes, either central or peripheral. A persistent cause should produce a continuous effect.

4. Some of the microscopists who discovered degenerative changes in the peripheral nerves which supply paralyzed muscles, state that some nerve-fibres have undergone complete or nearly complete degeneration, and others partial degeneration, while others still seem to be intact, a condition which would hardly account for the complete paralysis which often exists, for instance, in the velum palati.

5. It has been noted, by both Drs. Sass and William H. Thomson, that diphtheritic paralysis, both motor and sensory, is frequently limited to the parts supplied by a single branch of a nerve, while all the other branches have their normal function. This fact, of not infrequent occurrence, is not, of course, antagonistic to the theory that peripheral nerve lesions cause the paralysis; but it affords a strong, if not conclusive, argument against the theory that central nerve lesions are the cause.

Notwithstanding such objections as these, however, when the lesions referred to are found after death, whether peripheral or central, we naturally inferred that they had a tendency to increase and prolong the paralysis. The present theory relating to the etiology of diphtheria which is gaining acceptance throughout the world, is that the specific germ of the disease acts only locally upon the surface, and that systemic infection occurs through ptomaines, which are produced upon the surface by the agency of the microbes, and enter the system through the lymphatics, or bloodvessels. Even Oertel, who stated, twenty years ago, that he found the micrococcus of the disease in the kidneys and other internal organs, now asserts that he does not find microbes in the interior of the body, but only upon and in the inflamed surfaces in typical cases. If this theory is true, we must attribute anatomical changes in the interior of the body, in the peripheral nerves as well as the cerebro-spinal axis, to the agency of ptomaines, and the ptomaine must be the causal agent, acting directly or indirectly, in diphtheritic paralysis. Dr. William H. Thomson, in his recent paper on diphtheritic paralysis, wrote, "It is quite conceivable that a ptomaine may follow upon the changes which the diphtheritic process sets up in the organism, and thus produce all of its characteristic symptoms. The special tendency of diphtheritic inflammation to cause necrotic and gangrenous lesions lends further support to this surmise."

The ptomaines, Dr. Smith said, sprang into existence suddenly and unexpectedly under favoring conditions, as is seen in the cheese or milk ptomaine, tyrotoxicon; and chemistry, brought to the aid of microscopy, may yet reveal the fact that the common cause of diphtheritic paralysis is a chemical agent acting in some respects, in manner, though not degree, like curare. Clinical facts appear to harmonize best that a ptomaine is the direct cause of the paralysis, especially in cases occurring early and quickly cured; but it would be idle to argue that the

marked degenerative peripheral and central nerve lesions which are so frequently present in those who have died with diphtheritic paralysis, do not prolong and intensify the paralysis, and are in some instances its primary cause.

In speaking of the treatment of cardiac paralysis, Dr. Smith said that it was evident from the nature of the trouble that it must be combated promptly and with the most active remedies. The patient should be kept quiet in bed, with the head low, and alcoholic stimulants administered at once. In sudden seizures hypodermatic injections of brandy act most promptly in sustaining the heart's action. Ammonia, camphor, musk, and electricity are also of service, as well as predigested beef preparations, peptonized milk, and other concentrated foods designed for those with feeble digestion. If the urgent symptoms are relieved by those measures, such remedies should be employed as are useful in other formr of diphtheritic paralysis. In addition to the beef extracts, concentrated foods and alcoholic stimulants, iron and quinine, in moderate doses, are indicated. The use of electricity is suggested by the nature of the attack, though some physicians consider it of doubtful efficacy. If there be reason from the symptoms to suspect the presence of lesions in the central nervous system, the galvanic current, in short sittings, has been recommended in preference to the faradic; while, in ordinary cases, either the direct or indirect current may be employed. Strychnia, however, is regarded by good observers as the most efficacious nerve stimulant in the various forms of diphtheritic paralysis, and he referred to the testimony of Reinhard, Gerasimon, and Henock in its favor. Still, it is a fact that some physicians of experience state that they have not observed any marked benefit from this agent.

The President said that there were several questions of great interest suggested by the paper which he trusted would receive attention in the discussion. Thus, Is the heart failure, which occurs early in the disease, identical with and dependent on the same cause or causes as that occurring in its later stages? Again, Are the cases in which a slow pulse is noted of the same nature as those in which the pulse is quick? Still, again, Is there any difference between those cases of heart failure, which precede and those which follow general paralysis?

Dr. A. L. Loomis said that his experience with heart failure in diphtheria was limited to two cases. Both the cases were well on in convalescence, the trouble occurring on the twentieth day, if he remembered rightly, and in both death took place almost instantaneously. In one of these no autopsy was made, but in the other post-mortem examination showed that the heart cavities were distended with pretty firmly organized clots, while the walls of the heart were in a granulo-fatty condition. There was no appreciable change in the medulla oblongata, and the peripheral nerves were not examined. From his observation and reading he had supposed that diphtheritic paralysis and heart failure are not always dependent upon the some cause or causes. In the early stages of diphtheria it had seemed to him that heart failure is due to the direct action of the poison in the system, whatever that might be; as is, no doubt, the case in other diseases, especially typhus fever, in which sudden death not infrequently occurs from this cause. On the other hand, he had been inclined to believe (although there was not, perhaps, sufficient ground for justifying such an assumption), that in the advanced stages of diphtheria heart failure, when it occurs, was due to a peripheral neurosis.

Dr. A. Caillé spoke of the importance of keeping all patients suffering from diphtheria strictly confined to bed. He said that formerly he had believed that such patients should be encouraged to get up and go into the fresh air if they were strong enongh to do so, but his later experience had convinced him of the great danger of such a course; and he related one of his cases to illustrate this point. In another case which he mentioned, one of diphtheria following measles, heart failure resulting in sudden death was apparently induced by an error in diet. In the absence of her attendants the child partook of a meal of fried clams and cabbage. He also spoke of the importance of sufficient stimulus in every case of diphtheria, as one of the most efficient preventives of heart failure.

Dr. Beverly Robinson said that, so far as he was able to judge, cardiac failure in acute cases, in the majority of instances, is connected with the ante-mortem formation of clots in the heart (especially the right heart), depending on granulo-fatty degeneration of the walls of the organ. When a hospital interne in Paris he had made a large number of autopsies in such cases, and he had never found any lesions of the peripheric nerves. He believed that the condition of the heart, to which he had referred, could be frequently detected during life in acute cases, if properly looked for. Dr. J. Forsyth Meigs, of Philadelphia, was the first to call attention to this feature of diphtheria. In his experience death did not always occur rapidly; the symptoms of heart-failure often continuing for a considerable time before the fatal termination. After death there would almost invariably be found fibrinous clots, particularly in the right heart, and from their character he believed that they were formed ante-mortem and were to a greater or less extent the direct cause of death. In some instances the condition was associated with more or less broncho-pneumonia, and in others not. Altogether, it seemed to him a sufficient explanation of the phenomena noted. In conclusion, Dr. Robinson said that it was his impression that tincture of chloride of iron, in the large doses in which it is frequently given in diphtheria, has a direct effect in the formation of these heart-clots.

Dr. Fruitnight said that he was inclined to believe that the agency of ptomaines, as suggested by Dr. Smith, offers the most plausible explanation of the heart-failure. The condition present is practically a toxæmia, and the treatment must, therefore, be preservative, as well as curative. He differed from Dr. Robinson in his opinion as to the effect of tincture of chloride of iron, and believed it one of the most useful remedies at our command in diphtheria. As it is a medicine given so constantly in this disease, it seemed to him that if it really is the cause of the formation of clots with resulting heart-failure, we should find heart-failure a much more frequent complication than is now the case. It is in the experience of all, he thought, a comparatively rare condition.

Dr. Seibert said that he thought a differentiation ought to be made between heart-failure occurring in the early stages of diphtheria, which he believed to be due

to the direct action of the poison of the disease on the central nervous system, and that occurring in the later stages, which he believed to be brought about by pathological changes in the heart-muscle. He then related some cases of death from heart-failure, and stated that all the patients died from the attempt to make some exertion.

Dr. S. H. Dessau said that he had been accustomed to think that the heart-failure was due to various causes, and it seemed to him probable that when it occurred in acute cases it was due to cardiac thrombosis. As regards the matter of treatment, he thought strychnia was a dangerous remedy on account of the special susceptibility of children to its effects, and he had known of one instance in which this agent was apparently the cause of death.

Dr. Loomis said that Dr. Robinson seemed to be of the opinion that it was the heart-clot that killed. He himself, however, did not believe it was possible to have a clot without antecedent heart-failure. It was the heart-failure that caused death, and the formation of a clot was simply the last act, resulting from the slowing of the blood-flow. As to the alleged effect of the tincture of chloride of iron, he could hardly understand how any remedy whatever could increase the coagulability of the blood beyond which it reached naturally in various diseases.

Dr. Robinson said his personal experience compelled him to differ from Dr. Loomis as regards the formation of clots, and as he had formerly made a special study of this subject, he felt justified in the views which he held. It was a fact that the heart-clot in diphtheria differed absolutely from every other. It was completely fibrinous and formed in layers, and he thought there could be no possible doubt that it existed a long time before death. He did not believe, from his own observation or from any evidence that had been presented to that effect, that heart-failure occurred before the formation of the clot. Direct experimentation had also shown that these clots might be found without any change whatever in the heart structure.

The President said that in the case of Dr. Loomis in which an autopsy was made, death probably resulted from fatty degeneration of the heart. Or, it was possible, that the child had died simply of syncope, the result of sudden anæmia of the brain, brought about by exertion. In pneumonia it is well known that patients sometimes die suddenly from such syncope. Fatty degeneration of the heart, however, is always a sufficient cause of sudden death. There is one peculiar condition that may be mistaken for heart-failure in the later stages of diphtheria, viz.: Paralysis of the muscles of respiration. This condition usually follows the other forms of diphtheritic paralysis; the paralysis, as a rule, affecting first the throat, then the muscles of accommodation, then the extremities, and, finally, the respiratory muscles. Paralysis of the latter is characterized by shallow respiration, with a great deal of resulting dyspnœa and rapidity of the heart's action. In such cases electricity, repeatedly applied, and strychnia in full doses, are very beneficial. The strychnia should be given hypodermatically, the one-hundredth of a grain of the sulphate every one, two, three, four, or five hours, according to circumstances. Such a case as that referred to by Dr. Dessau he did not think should prevent our using this remedy, as there is always more or less danger connected with the use of any poisonous agent, and some individuals are peculiarly susceptible to the action of special drugs.

It is impossible to say which of our diphtheritic patients are going to die of heart-failure; but we do know that in diphtheria there is such a tendency, and hence it is our duty, in every instance, to do all that we can to prevent such an accident. The indications are to save the strength of the patient by feeding and tonics, and especially to fortify the heart by means of alcohol and such agents as digitalis, sparteine, and strophanthus. In every case of diphtheria we have to deal with sepsis, and alcohol is, therefore, of the highest possible advantage. He believes that no case of this disease can be injured by alcohol, and even the most courageous practitioners often err in giving too little of this invaluable agent. If the choice were given him between alcohol and all other remedies in diphtheria, he would undoubtedly select the former as offering the best chances for the patient. In brief, then, the indications are to save the strength, combat sepsis, and fortify the heart.

Dr. Smith said, in bringing the discussion to a close, that since the stomach and lungs, as well as the heart, are affected, the inference is that the cause of the trouble is some affection of the nerve supplying these three organs, the pneumogastric. It is a fact that a certain proportion of patients attacked with heart-failure recover, and that in some of those who died there is for a time an amelioration of the symptoms; and it seemed to him that this would not be possible if the trouble were due to heart-clot, which would undoubtedly be a permanent condition, unaffected by any treatment that could be adopted. It was also a fact that paralysis of some form almost invariably precedes the heart-failure, and this would seem to indicate that the latter is due to the same cause as the paralysis.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, October 1, 1888.

R. J. Levis, M.D., in the Chair.

Dr. J. Ewing Mears reported the following case of

RADICAL CURE OF INGUINAL HERNIA.

James B., aged forty years, laborer, was brought to the hospital June 4th suffering from strangulated inguinal hernia. Had had hernia since he was six years of age. Had always worn a truss, removing it every Saturday evening and reapplying it Monday morning. Removed truss June 2d as usual, with resulting protrusion, which he failed to reduce. A physician was called in, and after making taxis for a few minutes, failed to reduce. He recommended the patient to St. Mary's Hospital for operation. Dr. Mears was summoned, and after employing taxis succeeded in partially reducing the hernia. There was slight vomiting after this (not stercoraceous).

7 P.M. Patient covered with sweat; temp. 101° F., pulse 100; has a great deal of pain. There was a good deal of swelling in inguinal region, due either to inflammation or recurrence of the hernia; most likely the latter.

Dr. Mears examined the patient, and decided to operate.

An oblique incision about three inches in length was made, the various layers divided, and the contents, as diagnosticated (omental), exposed. The constriction at

the internal ring was divided by the hernia knife, the omentum drawn down and ligated in six equal segments with carbolized silk; the last ligature, after ligating its own segment, was passed around the entire mass. The omentum was next divided, and what was esteemed to be one-quarter of it was removed. The stump was then dropped back into the cavity of the abdomen. The sac was next dissected up from its adhesions, ligated in two places and divided; the upper part was transfixed into the ring by means of a harelip pin, the lower part was dropped into the scrotum. In tearing the sac from its adhesions there escaped about f℥j of clear straw-colored serum. The operation was strictly antiseptic. Only two wire sutures and three of catgut were needed to close the wound. There was slight tympany in the evening.

The wound healed with great promptness, and the sutures were removed on the fifth and sixth days. An attack of diarrhœa delayed the convalescence slightly. Two weeks and a half after the operation the patient sat up, and was discharged six days later. Dissection of the hernia, at the time of the operation, showed it to be congenital in character and the method of dealing with the sac, by double ligature and section, provided a vaginal tunic for the testicle. The proximal stump of the divided sac was twisted and transfixed by a long pin, and this secured in position in the internal ring, forming a barrier to further omental or intestinal descent. As is usual in these cases, a small knuckle of intestine accompanied the mass of omentum.

Dr. William Hunt said that in these cases some time must elapse to decide whether the cure is permanent. There is no doubt about the dense and strong union of *serous* surfaces, and based upon this, he made a suggestion as to a radical cure for hernia. He did not know whether it was new or had ever been tried. In these days of laparotomy upon both sexes, it is reasonable to suppose that a patient might come under the surgeon's hands who is at the same time a subject of hernia. Let the surgeon then take the opportunity of pulling the hernia in from the inside and stitch the broad serous surfaces at the hernial opening together, taking care of the cord, if the hernia is at that point. The result might develop whether it would be justifiable to do this operation for its own sake.

Dr. C. B. Nancrede thought that in these operations for the radical cure of hernia, it would be advisable to unite the parts with something that will remain permanently, such as silkworm-gut. This is non-absorbent and non-absorbable. A few months ago, in operating for a ventral hernia, where it would have been impossible to get anything like a plug of inflammatory matter, he closed the opening with three silkworm-gut sutures. The result was perfect. He thought this would be better than simply trusting to deposit of inflammatory matter.

In regard to the use of a truss after these operations, there was published some six months ago a *résumé* of a large number of operations, and the conclusion reached was that a truss had better be dispensed with.

Dr. R. J. Levis said that as far back as twenty years ago the operation for the radical cure of hernia was quite a subject of discussion. He performed quite a number of operations by the invagination plan, in which peculiar instruments were employed. All of these cases proved failures. In this operation a plug from the surrounding tissue, perhaps the size of the end of a finger, was introduced into the ring and the plug closed in. He also operated in other ways, employing both the operation of Wutzer, Wood, and of McDougal. Our operations are now performed on a different plan. If there were any difficulty in bringing the columns of the ring together, he did not see any objection to freeing them from their lateral attachments in order that they may be approximated. His confidence would be in some means of holding the parts together until united.

Dr. Mears said that operations for hernia have taken a new departure since the work of Macewen and of Ball, of Dublin. He thought that we may now say that our operative work in regard to hernia is almost perfect, whether we adopt the method of Macewen or that which he carried out in this case. In a case presented to the Academy recently, and operated on by Macewen's method, in which the ring was carefully sutured, the hernia returned. What is needed and what is endeavored to be accomplished by the injection of infusion of oak bark in Heaton's method, is a mass of lymph to plug the opening and form a barrier to the descent of the hernia. Macewen plugs up the opening by tucking up the sac. In the method employed in this patient, the important point is to pull the sac down until you get that which is loose, and the finger may be used to loosen it around the ring. Then by transfixing this and fastening it in the opening a plug is secured. Different views have been entertained as to the advisability of removing the redundant portion of the sac or allowing it to remain. In the case presented, the hernia being congenital, the lower part of the sac was allowed to remain, forming a tunica vaginalis.

In this case he directed the patient to wear a Spica bandage with a compress after the operation. A truss, especially where it makes strong pressure, has a tendency to cause absorption of the inflammatory mass. All that is required is a simple support for a short time. This may be furnished either by a light truss with a broad pad or by a bandage.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, October 19, 1888.

The President, William Gardner, M.D., in the Chair.

Drs. George Ross and F. J. Shepherd reported a case of

PERFORATING APPENDICITIS

in which laparotomy was performed.

Dr. Ross gave the following history of the case: On the 4th inst., first saw the patient in consultation with his attending physician, who had first visited him three days previously. The patient was a healthy lad, aged seventeen. He had always enjoyed good health with the exception of some three or four attacks of so-called colic which had occurred within the past two years. These attacks were all very similar, and consisted of a somewhat sudden pain in the lower part of the abdomen and in the *left* side, not very severe and always soon relieved by a hot application and a mild anodyne. The attacks were attended by vomiting. The following day a dose of castor oil was given, and then the boy appeared quite well again. He was never away from his work on account of these attacks for more than two days. In the

intervals he suffered from no digestive disturbance of any kind, the fecal evacuations being quite normal.

Early in the morning of the first he awoke suffering from violent pain across the belly, chiefly in the middle zone and toward the *left* iliac fossa. Vomiting soon came on and was several times repeated during the day. The attack was looked upon as similar to those previously suffered from and was treated in the same way. Opium and poultices were prescribed by the medical attendant.

Dr. Ross first saw the patient four days later. At that time the face had the characteristic abdominal expression, but was not specially anxious-looking. Color good. He complained of great pain in the lower part of the abdomen and on the *left* side; no pain on right side. Flatulence was considerable and the belly was moderately distended, chiefly in its lower half; parietes very firm and resisting; tenderness not great, but well marked, chiefly in the hypogastric, umbilical, and *left* iliac regions. Pressure was better borne in the right iliac fossa than in almost any other part, and palpation of that region failed to detect any deep-seated fulness or resistance. Vomiting was frequent. The evening previous the bowels had been moved by an enema. Pulse 120 and weak, temperature 98°.

The diagnosis lay between an acute obstruction and an acute peritonitis, the latter view being favored by Dr. Ross. The cause of the peritonitis was the difficult point to decide; the sudden onset and rapid progress of the case suggested perforating appendicitis, and this was considered probable. The history gave some support to this idea, the difficulty being that the pain had always been referred to the left side, and on this side was also the greatest degree of tenderness. The ultimate diagnosis was acute purulent peritonitis depending on some previous disease in the lower part of the abdomen and that this might be an appendicitis, but the evidence on this point was inconclusive.

Dr. Ross gave it as his opinion that the boy would not live twenty-four hours if unrelieved, and strongly advised laparotomy. He fully realized the fact that four days had already elapsed and that the peritonitis was very extensive, and that in consequence the chances of relief by operation was very small. The boy was removed to the General Hospital and, after consultation with Drs. Shepherd and Bed, laparotomy was decided on.

Dr. Shepherd said that when he saw the case with Dr. Ross, the patient was in a very helpless condition; he had a pulse of 150 and of much volume; vomiting was continuous. There was no tenderness on deep pressure in the iliac region, nor was there any fulness. The only very painful point was a little below and to the left of the umbilicus. It was decided to give the patient the very small chance offered by operation.

An incision some two inches long was made in the median line below the umbilicus and two fingers introduced; nothing could be felt but distended intestines, and the cæcum could not be reached, so the incision was enlarged and the hand introduced; no collapsed intestine could be felt, but quantities of lymph covered the intestines, and some fetid pus escaped from the wound; the left iliac region was explored, the appendix was felt hanging over the brim of the pelvis, and was apparently normal, though somewhat distended. For purposes of further exploration some of the intestines were drawn out of the abdomen and the cavity washed out with hot water. A large quantity of pus and lymph was evacuated from the bottom of the pelvis. In order to return the distended intestine an incision was made in it to allow the gas to escape; this incision was closed by Lembert sutures. The abdominal wound was now closed, a glass drainage tube being left at the lower end. At the end of the operation the boy was much collapsed and his pulse had failed markedly. He rallied somewhat but died next morning. After the operation there was no more vomiting.

An autopsy was made by Dr. Lafleur, who found that the cause of peritonitis was a perforation of the appendix. This appendix was found hanging over the brim of the pelvis, and it was in a gangrenous condition. It was folded up on itself, the perforation was situated within the fold and could not be seen until the parts were dissected out; to the feel, the appendix was normal. There was a great quantity of lymph on the intestines, and in the true pelvis the folds of intestines were glued together in every direction.

Dr. Shepherd remarked that, although he had examined the appendix at the time of the operation with his fingers he had not seen it, and that this case taught him that in cases of general peritonitis the appendix should always be examined by sight, even if the history and symptoms of the case do not point to this part as being the origin of the affection. If the cæcum and appendix cannot be brought to the surface at the median incision, they should be examined through an incision made in the left iliac fossa. The position of the appendix, viz., pendent in the cavity of the pelvis, explained in this case the absence of local symptoms; although the pelvis was examined before operation per rectum, nothing was made out. Dr. Shepherd also remarked that in these cases of perforating appendicitis in which the peritonitis was diffuse from the first operation, gave much less hope of cure than when there was from the outset a distinctively localized area of inflammation, characterized by the existence of a tumor.

Dr. Ross urged strongly the importance of early laparotomy in these cases, and said that operation should not be postponed beyond the third day. In this case, operation was not undertaken until the end of the fourth day, and consequently but little good could be expected from it.

Dr. Roddick asked Dr. Shepherd whether, if he had recognized the lesion in the appendix, he would have excised it, and would the result have been different.

Dr. Mills said that the position of the appendix was peculiar and might have caused a diminished circulation and finally strangulation; there was no doubt that the position favored the necrotic process.

In reply to Dr. Roddick, Dr. Shepherd said that if he had made out the gangrenous condition of the appendix he would have excised it, but that he did not think this would have had any influence on the result.

Dr. Harvey, of Calcutta, made a few remarks on the objections to laparotomy prevalent among the natives of India, and said that it was very rare to get a native to consent to any new operation. He related a case which had come under his observation, of perforation of the appendix due to a lemon seed.

Dr. Wm. Gardner related a case in which he had lately performed

ABDOMINAL SECTION

at the request of Drs. Rodger and England. The patient was a lad aged sixteen, who suffered from severe abdominal pain and vomiting a few days before; this was relieved by morphia, and in a day or two he was able to return to his work. When seen by Dr. Gardner he had very severe abdominal pain, vomiting, constipation, and marked distention of the abdomen. There was also an elastic swelling the size of a duck's egg in the region of the right inguinal canal. On examining the scrotum only one testicle (the left) was found. There had been a suspicion of strangulation with peritonitis, and the patient had been put under ether without result. So it was decided to open the abdomen, and this was accordingly done.

An incision was made long enough to admit two fingers; on incising the peritoneum a quantity of turbid serum escaped. All the ordinary hernia regions were examined and nothing found. The swelling in the inguinal canal was in the abdominal wall and extra-peritoneal; nothing else being found, the wound was closed.

The symptoms were much relieved for three or four days, then the abdominal distention began to increase and became very marked on the eighth day. However, the bowels began to act freely and the boy rapidly recovered, and was now quite well; the swelling in the groin had completely disappeared.

DR. BELL exhibited specimens from a

CASE OF SEVERE SYPHILIS

which had died from tuberculosis of the lung. The syphilitic disease in this case was very destructive, causing extensive ulceration of palate and larynx. The nose had disappeared. In the brain were spots of softening, due probably to thrombosis. The patient first contracted syphilis in 1886, and never commenced treatment until 1888.

DR. RODDICK exhibited two specimens of

CANCER OF THE LOWER JAW.

The first had occurred in a man aged forty-five. The growth commenced in the gum near the first molar tooth some months before, and rapidly spread to the bone and cheek. Half the lower jaw and a portion of the cheek were removed. The glands were only slightly enlarged and not infiltrated; the growth was epithelioma.

The second case occurred in a man aged sixty-five. The disease first appeared on the lower lip some eighteen months before, and rapidly involved all the soft tissues as far as the chin; the growth was adherent to the bone and of great density and hardness. The affection was never painful. The submaxillary lymphatic glands were involved. The growth and the portion of lower jaw to which it was adherent were removed. The growth proved to be epithelioma.

EXCISION OF KIDNEY.

DR. GARDNER exhibited a tumor, which he believed to be the left kidney, removed some days before by abdominal section from an unmarried woman of twenty-eight years, who had first noticed the tumor two and a half years previously. It had grown slowly, and had been moderately painful. On examination it appeared to be the size of a child's head, was hard, nodular, painless, and was so movable that it could be shifted to any part of the abdominal cavity from its ordinary position on the left side. When the patient was on her back the lower end of the tumor could be felt through the vagina. It could not be felt or pressed into the left lumbar region. Percussion showed it to be surrounded by intestine. The tympanitic note over it was unmistakable in the left loin. The patient was watched for eight days before operation. Pus was constantly present in the urine; she had night-sweats, but no rise of temperature.

At the operation the tumor was found to be behind the mesocolon, and the descending colon was over its outer aspect. The peritoneum over the tumor was incised, and the tumor was then easily shelled out. The attachments were at its upper end, and seemed to be the blood-vessels and ureter. The operation was completed by gathering the edges of the capsule together, and including them in the abdominal sutures. A glass drainage tube was inserted at the lower end of the wound; this was removed at the end of forty-eight hours. Her progress was uneventful, and now, at the ninth day, recovery is assured.

The tumor on section was found to be moderately firm, the surface grayish-white and fibrous. The growth was loculated; some loculi contained pus, others a yellowish transparent fluid. Urine was secreted plentifully from the first; the first two specimens contained blood, but no pus; since then there had been a little pus in the urine. Dr. Gardner thought that the absence of pus from the urine after the operation was conclusive evidence that the tumor was the kidney.

DR. RODDICK asked Dr. Gardner whether he would have performed the median incision if the diagnosis of kidney tumor had been made before operation.

DR. SMITH congratulated Dr. Gardner on the success of this operation, and said he was glad to see the gynecologist wresting further territory from the surgeon.

DR. SHEPHERD asked Dr. Gardner if it was not usual, in cases of removal of kidney by median abdominal incision, to drain through the loin. From the description given by the reader of the paper, the kidney removed appeared rather an anomalous one. All the vessels entered its upper end, and the ureter could not be distinctly made out. The tumor, if kidney, was apparently functionless.

DR. GARDNER, in reply, said that for such a tumor the abdominal incision was the best, the tumor was so movable and it could not be felt at all from the lumbar region. He was aware that some surgeons recommended draining through the loin in such cases, but he thought where the enveloping peritoneum was so loose, as in this case, and could so easily be brought to the surface and drained through the abdominal wound, the method adopted by him was preferable. He had handed the tumor over to Dr. Lafleur for examination and report.

DR. RUTTAN exhibited for Dr. deW. Smith, of British Columbia,

A LARGE GALL-STONE

which had been removed from the intestines after death, having produced fatal obstruction. The stone must have ulcerated through the gall-bladder into the duodenum as its size precluded the possibility of its passing successfully through the common duct. There had been no previous history of gall-stone.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, October 10, 1888.

THE PRESIDENT, J. SOLIS-COHEN, M.D., IN THE CHAIR.

DR. JAMES K. YOUNG exhibited the

MORTON OPHTHALMOSCOPE,

which presents some new features of interest. It is made by Pickard & Curry, London, and as an instrument is well balanced, fits the eye well, and as a piece of mechanism is perfection itself. It is a modification of the Gower's ophthalmoscope, as are all modern English instruments, but in the position and movement of the lenses differs from this and all others. The Rekoss disk is there replaced by an elliptical trough containing the lenses. These are simply confined in the channel, are unattached to each other, and are moved by a wheel below, and pass around a wheel above.

In this respect it resembles the Couper instrument, in which the lenses are attached to one another as an endless chain, but is an improvement in the right direction. It has, in all, thirty-three lenses. In the trough are eighteen concave lenses from —0.5 to 30 D. Eleven convex lenses from +0.5 to 12 D., and on the disk has four additional lenses, a — 10 D. and — 50 D., and a +0.5 and + 20 D. These admit of as many combinations as any instrument he was familiar with.

It has three mirrors, a small concave mirror of about 6 cm. focal length, fastened to a collar, a large concave mirror of about 29 cm. focal length, and a plane one. These are all attached, and the apertures come readily over the sight-hole. It has below the index dial a pupillometer, which adds to the usefulness of the instrument. It fits accurately into a rosewood case, and has a convex lens for the indirect method.

NEWS ITEMS.

The Origin of the Yellow Fever Epidemic.—At the meeting of the Virginia State Medical Society, held at Norfolk last week, Surgeon-General Hamilton, of the Marine-Hospital Service, gave the following account of the manner in which the now-prevailing epidemic of yellow fever was introduced into this country, the details of which, he said, had been secured at great cost to the Government and which have not as yet been published:

Last year the yellow fever appeared in Key West in the family of a restaurant keeper by the name of Baker. It appears that a family of Bolios, who had kept a hotel in Havana in various places, the last being called the Quinta-Avenida (Fifth Avenue) Hotel, unfortunately for Florida, emigrated to Key West. Their household effects, under the regulations governing the regular line of steamers, could not be shipped by them, so they shipped these effects, consisting of bedding and various articles of furniture, by an irregular "tramp," not now running, called the "Cochran." There was no objection officially made at Key West, as there was neither Government nor local quarantine, and the articles were landed and stored above Baker's restaurant. The Baker family died of the fever, and thus the fever started, and rapidly became epidemic.

The Government, under the operation of that section of the statutes forbidding interference with local authorities, did nothing except that, on request of the Governor to aid the local board, they established a dispensary and paid the expenses of the city hospital. To assist in the speedy depopulation of the city a refuge camp was established at Egmont Key, at the mouth of Tampa Bay. No case from Egmont communicated the disease. The first cases in Tampa were kept secret from August to October 21st. A family of Italians by the name of Turk, fruit-dealers, brought the fever into Tampa. The steamers had refused, under orders from the Hillsborough County Board of Health, to bring fruit from Havana or Key West. These Italians finding it impossible to continue in business, set up a smuggling line and brought fruit by way of Punta Gorda Bay and overland to Tampa. For this purpose the man Turk and his assistant Peep, or "Pete," made frequent surreptitious visits to Key West while the disease was there epidemic, and blankets were purchased in the infected city and used while on the overland trip, and brought to Tampa. It is a significant fact that the whole family of the Italians were the first taken sick, and that they were not publicly known to have been out of the town, although the fact is now known. The measures taken by the Government were simply to conform to the wishes of the Governor to aid the Hillsborough County Board of Health.

The duty of preventing the spread of the disease was undertaken by the Florida State Protective Association, an organization consisting of one representative from each County Board of Health, under the presidency of Dr. King Wyley, of Sandford. In December the Association raised the quarantine against Tampa. The County Board of Health asserted that the disease had disappeared, but unfortunately the disease had not been stamped out, and although the cases of fever lingered all winter in Tampa, its existence there was bitterly denied. From Tampa the disease spread to Plant City, Manatee, and other places, and it is now believed that the fever was at Jacksonville as early as February. Dr. Guitéras, of the Marine-Hospital Service, an acknowledged expert, says that in his judgment at least two of the cases of "society" fever, of which there were over thirty reported in Jacksonville in that month, had the well-marked clinical history of yellow fever. Nine of these cases died. Dr. Potts treated cases in Bay Street in June, and there were probably cases continuously until the formal announcement was made. He said that so-called isolated cases had been reported at Jacksonville after the case in Bay Street had been treated in June by Dr. Potts, but that the local authorities denied the presence of an epidemic, and placed a guard around each case. This state of things existed until August 16th, when the spread of the disease in Jacksonville became so great, cases springing up at various points in the city, that could not be traced to any of the so-called isolated cases, that the authorities had to declare the disease epidemic.

Dr. Hamilton said that the disease had been introduced in Decatur, Ala., by a man who had gone from Jacksonville while all of the cases in that city had been reported under guard. His ticket had been from some point outside of the infected city, and consequently he was not denied admittance. The doctor said the fever had been introduced into Gainesville and Fernandina by baseball players, who had played a game of ball in Jacksonville before the epidemic nature of the disease had been declared, and then returned to these cities.

Dr. Hamilton went on to explain the Government work at Camp Perry, and said that since its establishment there had been only one death from yellow fever in the fever hospital at the camp. He said that the experience of the physicians at the camp went to show that five days was the incubative period, and that when persons had been in the camp for that length of time and did not develop the disease, there was no danger of their having it. No person having spent ten days in the camp had developed the fever after leaving the station.

He spoke of the lack of local inspection at Tampa, where the disease first appeared this season, and said that if the first cases had been reported there would probably have been no epidemic, and he also said that he had proof to show that when the case of McCormack was reported as the first in Jacksonville, that the fever was then epidemic.

He also stated that while the fever was raging at Key West he, at the request of several health officers, had prepared a bill providing for the establishment of a State Board of Health, but it was laid on the table by the Florida Legislature through motives of false economy. He concluded by saying that the inspection of Florida cities, ordered by the Government, had developed the fact that the yellow fever was epidemic in both Enterprise and Fernandina.

Fatal Accident to a Physician.—Dr. R. Leonard, of Mauch Chunk, a prominent physician of Carbon County, while walking home from a visit to a patient, early on the morning of the 26th ult., was struck by a passing train and killed. Dr. Leonard was active in the local medical societies, was President of the Lehigh Valley Medical Association in 1884, and a member of both the State and National Society.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 30 TO NOVEMBER 5, 1888.

BAILEY, ELISHA J., *Colonel and Surgeon.*—Detailed for duty on the Army Retiring Board, to meet at San Francisco, California, for the examination of such officers as may be ordered before it.—Par. 3, *S. O. 253, A. G. O., Washington,* October 30, 1888.

COCHRAN, JOHN J., *Captain and Assistant Surgeon.*—Detailed for duty on Army Retiring Board, to meet in San Francisco, California, for the examination of such officers as may be ordered before it.—Par. 3, *S. O. 253, A.G. O., Washington,* October 30, 1888.

NORRIS, BASIL, *Lieutenant and Assistant Surgeon.*—Will be relieved from duty in the Department of the Columbia, by the commanding general of that Department, and will report in person on or before November 14, 1888, to the commanding general Division of the Paeific, for duty as Medical Director of that Division and of the Department of California.—Par. 14, *S. O. 255, A. G. O., Washington,* November 1, 1888.

By direction of the Secretary of War, EDWARD P. VOLLUM, *Lieutenant-Colonel and Surgeon,* on being relieved from duty as Medical Director Department of Texas, by Lieutenant Colonel Joseph C. Baily, Assistant Medical Purveyor, under War Department Order dated October 31, 1888, S. O. 255, A. G. O., will repair to New York City, assume the duties of Acting Assistant Medical Purveyor, and take charge of the medical purveying department at that place.—Par. 2, *S. O. 255, A. G. O., Washington,* November 1, 1888.

ALEXANDER CHARLES T., *Lieutenant-Colonel and Surgeon.*—Is relieved from further duty in the Department of Dakota, and will report in person to the commanding general Department of the Columbia, for duty as Medical Director of that Department.—Par. 14, *S. O. 255, A. G. O., Washington,* November 1, 1888.

BAILY, JOSEPH C., *Lieutenant-Colonel and Assistant Medical Purveyor.*—Is, at his own request, relieved from the charge of the medical purveying depot in New York City, and is, by direction of the President, under the provisions of the Act of Congress approved June 23, 1874, assigned to duty as Surgeon in the Medical Department. He will report in person to the commanding general Department of Texas, for assignment to duty as Medical Director of that Department, to relieve Lieutenant-Colonel and Surgeon E. P. Vollum.—Par. 1, *S. O. 255, A. G. O., Washington,* November 1, 1888.

By direction of the Secretary of War, leave of absence for two months, to take effect on the completion of his present duties, is granted to HENRY MCELDERY, *Major and Surgeon* (U. S. Army).—Par. 3, *S. O. 256, A. G. O., Washington, D. C.,* November 2, 1888.

WEISER, DANIEL, *Captain and Assistant Surgeon* (U. S. Army).—Died at Fort Sill, Indian Territory, October 30, 1888.

HOFF, J. VAN R., *Captain and Assistant Surgeon.*—Is granted leave of absence for one month, with permission to apply for an extension of one month.—*S. O. 134, Headquarters Department of the Missouri, Fort Leavenworth, Kansas,* November 1, 1888.

By direction of the Secretary of War, JOHN J. COCHRAN, *Captain and Assistant Surgeon,* is relieved from temporary duty at Headquarters Division of the Pacific, and will report in person to the commanding officer Fort Adams, Rhode Island, for duty at that post.—Par. 2, *S. O. 256, A. G. O., Washington,* November 2, 1888.

By direction of the Secretary of War, NORTON STRONG, *Captain and Assistant Surgeon,* is relieved from duty in the Department of Arizona, and will report in person to the commanding officer Fort Schuyler, New York, for duty at that post, and by letter to the commanding general Division of the Atlantic.—Par. 4, *S. O. 255, A. G. O., Washington,* November 1, 1888.

OWEN, W. O., Jr., *Captain and Assistant Surgeon* (Fort Leavenworth, Kansas).—Will proceed at once to Fort Sill, Indian Territory, and report to the commanding officer, for temporary duty at that post.—Par 1, *S O. 133, Headquarters Department of the Missouri, Fort Leavenworth, Kansas,* October 30, 1888.

GLENNAN, JAMES D.—Appointed Assistant Surgeon (U. S. Army), with rank of First Lieutenant, to rank from October 29, 1888.

BRADLEY, ALFRED E.—Appointed Assistant Surgeon (U. S Army), with rank of First Lieutenant, to rank from October 29, 1888.

By direction of the Secretary of War, JAMES D. GLENNAN, *First Lieutenant and Assistant Surgeon,* recently appointed, will repair from this city to Willett's Point, New York, and report in person to the commanding officer of that post for duty.—Par. 3, *S. O. 255, A. G. O., Washington,* November 1, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING NOVEMBER 3, 1888.

GIHON, A L., *Medical Director.*—Ordered to Naval Hospital, Brooklyn, New York.

TAYLOR, JOHN Y., *Medical Director.*—Detached from Naval Hospital, New York, and ordered to Examining Board.

HUDSON, ADRIAN, *Medical Inspector.*—Promoted to Medical Director.

BRADLEY, MICHAEL, *Medical Inspector.*—Promoted to Medical Director.

BATES, NEWTON L., *Medical Inspector.*—Promoted to Medical Director.

WOOLVERTON, I., *Surgeon.*—Promoted to Medical Inspector.

WHITE, C. H., *Surgeon.*—Promoted to Medical Inspector.

WOODS, G. W., *Surgeon.*—Promoted to Medical Inspector.

DUBOIS, F. L., *Surgeon.*—Promoted to Medical Inspector.

COOKE, G. H., *Surgeon.*—Promoted to Medical Inspector.

WELLS, HOWARD, *Passed Assistant Surgeon.*—Premoted to Surgeon.

BERTOLETTE, D. N., *Passed Assistant Surgeon.*—Promoted to Surgeon.

GAINES, J. H., *Passed Assistant Surgeon.*—Promoted to Surgeon.

DERR, EZRA J., *Passed Assistant Surgeon.*—Promoted to Surgeon.

STEPHENSON, F. B., *Passed Assistant Surgeon.*—Promoted to Surgeon.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, NOVEMBER 17, 1888. NO. 20.

ORIGINAL ARTICLES.

THE RELATION OF ALBUMINURIA TO LIFE ASSURANCE.[1]

BY JAMES TYSON, M.D.,

PROFESSOR OF GENERAL PATHOLOGY AND MORBID ANATOMY IN THE UNIVERSITY OF PENNSYLVANIA, ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL, ETC.

IT is not unusual to hear that medical examiners of life insurance companies have passed candidates who are the subjects of well-established and, it would seem, easily recognized kidney disease; but it may occasion surprise to hear it asserted that a certain number of good risks are lost to companies by the indiscriminate rejection of all cases of albuminuria. This, however, I believe to be strictly true, and it is the object of this paper to point out these, and to discuss the question as to whether it is possible to save them. The importance of such discrimination is manifest, since it will be admitted by every one that no system of life insurance is perfect which does not include all who are essentially healthy, as well as exclude those who are not.

The terms normal or physiological albuminuria, functional, intermittent, cyclical, and alimentary albuminuria have become familiar to every reader of medical literature. They all refer to an albuminuria which is associated with an otherwise apparently healthy organism. No one of them conveys an accurate notion of what is meant, but the term I prefer is *functional* albuminuria.

The words "normal albuminuria" literally mean that the albuminuria itself is normal, which is not intended. The term "intermittent" implies an intermission, which does not always occur, while an albuminuria acknowledged to be abnormal may also be intermittent. The term "cyclical" supposes a periodicity in the intermissions which often occurs, but is by no means constant. Alimentary albuminuria represents a single class of cases in which the albuminuria succeeds the ingestion of food.

Functional albuminuria, on the other hand, simply means that there is somewhere a functional derangement, as the result of which, without structural alteration in the kidney, albumin transudes through its vessel walls along with the normal urine constituents. Of the immediate cause of this I believe it may be safely said we are ignorant, and to speculate upon it is foreign to my present purpose; but I am inclined to believe it is either some quality of the albumin which favors its transudation, or some excess of it in the blood as the result of which it, so to speak, overflows its banks.

I may allude also, in passing, to certain observations of Ralfe, Noel-Paton, and Oliver, as the result of which it is reasonable to suppose that where albuminuria succeeds the ingestion of proteids it is due to an over-stimulation of the red blood-disk destroying office of the liver whereby these bodies are too rapidly destroyed to permit the resulting albumin to be converted into urea, whence again the blood becomes overcharged and the albumin escapes.[1]

For the present we cannot get nearer the truth than this, but this much is now generally admitted, that the person thus affected is essentially healthy. Let me narrate briefly two cases under my observation which illustrate precisely what I mean.

CASE I.—On March 3, 1883, I first examined, at the request of Dr. W. W. Keen, of Philadelphia, the urine of a gentleman, then aged thirty. It had been passed in the morning on rising, and was essentially normal, containing neither albumin, sugar, nor casts. It had 34.5 grammes of urea to the litre. The evening urine contained one-fifteenth of its bulk of albumin but no casts, and there were 21.6 grammes of urea to the litre. Five days later a volumetric examination of the twenty-four hours' fluid discovered 29.8 grammes of urea, the average of two analyses. In addition to the fact that there was no albuminuria on rising, it was also noted that while exercise had the effect of increasing the albumin, massage had not. The most striking symptom was pain in the muscles of his legs, accompanied by a "tired" feeling, in seeking for the cause of which Dr. Keen discovered the albuminuria.

In June, 1884, the patient consulted Prof. T. Grainger Stewart, of Edinburgh, who gave the following opinion: "I have to-day completed the study of ——'s urine. He suffers from intermittent albuminuria, occurring chiefly after food and exertion. He has no evidence of Bright's disease, his urine being of good specific gravity, and containing upward of 400 grains of urea in the twenty-four hours. There is also no trace of sugar. There is no change in the heart or vessels, or in any organ,

[1] Read before the Association of American Physicians, Washington, 1888.

[1] Ralfe: On Some Clinical Relations of Functional Albuminuria, Lancet, 1886, ii. p. 764. Noel-Paton: Relation of Urea-formation to Bile Secretion, Journal of Anatomy and Physiology, October, 1885, January, 1886. Oliver, Thomas: Relation of Urea to Certain Diseased Processes, British Medical Journal, November 27, 1886.

and I regard his albuminuria of the functional kind which has been named 'alimentary albuminuria.'"

At Dr. Stewart's suggestion the patient took a long sea voyage. Six months after his return he came under my care. On January 18, 1886, he brought with him, at his first visit, eight specimens all passed on one day. These I examined with the following result: 7.45 A.M., no albumin; 9 A.M., half an hour after breakfast, one-fifteenth bulk; 10 A.M., an hour after breakfast, one-twentieth to one-fifteenth; 1.30 P.M., after rest, one-twentieth to one-fifteenth; 6.30 P.M., after exercise, one-fifteenth; 8 P.M., after supper, one-fifteenth; 10 P.M. *a trace.* I find also the following note: "Mr. C. has no symptoms, except that he becomes easily tired, but he allows his mind to rest a good deal on his albuminuria, and is in the habit of testing his own urine, and says there is much less albumin than there was, that he feels better when at rest, and on the ocean."

In March, Mr. C. again consulted Dr. Stewart, at Edinburgh. Dr. Stewart reported his condition about the same, "no better, no worse." He recommended a milk diet, suggesting eight ounces of pure milk and an unlimited amount of skimmed milk or buttermilk. On April 4th, under my directions, he began the milk diet, weighing at the time one hundred and twenty-five and three-quarters pounds. He took forty-eight ounces the first day, gradually increasing the amount until, on April 19th, he was taking four quarts a day. This was continued until April 25th, when I ordered a gradual return to a mixed diet. He first lost weight rather rapidly, losing two and a quarter pounds in six days. But as the quantity of milk was increased he gained, and when he returned to a mixed diet he weighed within a quarter of a pound of what he did at the start. At no time during this period of twenty days was the urine free from albumin, and although the proportion was less, yet it is to be remembered that the quantity of liquid ingested was very large, and that, therefore, the absolute quantity in the twenty-four hours was probably in no degree diminished.

From this time on until my last note, dated May 7, 1888, the albumin diminished gradually but irregularly so that more frequently at different times of the day there would be none whatever, being always absent on rising; it would oftener be absent after meals, while the average quantity of all examinations was less. His life is always one of considerable activity, and in summer he is extremely active all day long on a country place. At the last examination, at 9.30, after breakfast there was one-twentieth bulk; at 1 P.M., after exercise but not violent, one-fifth; 3 P.M., after dinner none; at 4.30 P.M., after rest, none; 7 P.M., after driving, a trace; 9.20 P.M., after supper and rest, one-thirtieth. With slight drawbacks his general health steadily improved, and, early in 1887, he married. *Casts were never found.*

As to the determining causes of increased albuminuria, my own study of the case added nothing to the conclusion already arrived at by Prof. Stewart, that food and exercise both tended to increase it, except that possibly exercise exerts a somewhat more potent influence than food.

CASE II., illustrating the class I desire to portray, is that of a gentleman, now forty-one years old. For fifteen years his mother has been passing uric acid gravel. Two maternal uncles died when about fifty-eight years old, having had gout since they were forty. The only suggestion of gout shown by him is an occasional tenderness or stiffness about the small joints, with slight lateral swellings.

From 1880 to 1883 I repeatedly examined his urine, finding nothing abnormal, except a slight hyper-acidity, until August, 1883, when I found a trace of albumin by the picric acid test. On each occasion there had been vague tenderness over the region of the right kidney, probably muscular. He is disposed to headache when constipated, on account of which takes care to keep his bowels free. On November 29, 1883, he called upon me complaining of discomfort, rather than pain, in the region of the right kidney, already referred to, a sensation he found difficult to describe. A portion of the past twenty-fours' urine was acid, had a specific gravity of 1.018, was a pale yellow, and contained neither albumin nor casts.

On January 13th, he was examined for life insurance. The medical examiner after his own examination brought me a specimen of urine, perfectly clear, specific gravity 1.020, in which I discovered a mere trace of albumin by the contact method with picric acid, and by the heat and acid test. On the 18th of the same month, the patient himself brought me a specimen, which also contained a trace of albumin by heat and acid, but which did not respond to nitric acid alone. The quantity on subsidence was decidedly less than that in the urine brought me by the life insurance examiner. On January 20th the urine responded to neither test. *None of these specimens contained casts*, but considerable uric acid appeared some time after the urine was passed.

On January 25th, my patient brought two specimens of urine, one voided in the evening just after tea, the other on rising Saturday morning. Neither contained albumin. On Saturday evening he went to a dinner party, ate freely of rich food, and drank champagne. After dinner he played on the violin for two hours, music requiring much expression and concentration. The urine passed the same night on retiring contained one-tenth bulk of albumin, and that brought to me had a copious sediment of urates. In that of the next morning there was a trace of albumin, but the most careful examination failed to discover casts. Urine passed Sunday evening after a supper of crackers, coffee, and preserves furnished a trace, as also did that of Monday morning. A portion of the twenty-four hours' urine also contained a trace.

Two days later, on rising, the urine was absolutely free from albumin; but after a breakfast of tripe, bread, and milk I found one-tenth its bulk. At 2.15 P.M., having attended a board meeting from 12 to 1.30, there was a mere trace. At 5.30 P.M., dinner and office business intervening, there was no albumin; nor was there any at bedtime.

The next day on rising there was absolutely none. That passed at 10 A.M., the first passed after breakfast consisting of a chop, oatmeal, and cream fol-

lowed by pepsin and a railroad journey of forty miles, was without albumin. After one and a half hours in court testifying, no albumin. After dinner consisting of chicken, bread, milk, and potatoes, none. That passed on returning to Philadelphia contained none. After a tea of oysters and milk-toast there was a trace, and at 12.30, after a visit, also a trace, rather more than after tea.

Such notes as these were made from day to day, and may be regarded as fair samples of the average condition. Always, with the exceptions named, the urine was without albumin on rising, but it was impossible to discover any law followed by the albuminuria at other times. At one time after breakfast, although at home writing quietly, there was one-tenth of albumin; at another there was none. On one day there would be a trace at each examination; at another, although more rarely, there would be none. This important fact was, however, ascertained, although the urine passed on rising contained no albumin, that passed at 9.30 A.M., *but before any food had been taken*, contained one-seventh its bulk. Urine passed at 11.05 A.M. the same day, one and a half hours after breakfast, contained a *trace;* that passed at 2.30 P.M. contained a mere trace; at 4.45 P.M., two hours after dinner, none; and at 6 P.M. none; that passed after tea contained none; at 11.45 P.M., after a lunch of roasted oysters, weak coffee, bread, and a teaspoonful of sherry wine, a trace. The last urine had a specific gravity of 1.030. This day's observations showed that the albuminuria did not, at least, necessarily depend on food; but rather that exercise was responsible for it. At other times, however, after exercise and after food there was no albumin. It was observed that there was almost invariably a tendency to increase after breakfast under any circumstances, almost as invariable as there was absence on rising. Next to the absence of albumin on rising, absence was noted more frequently between 4 and 6 P.M. More commonly there was albumin when the specific gravity was high, yet I note that at least once with specific gravity of 1.036 there was none.

In this case the albumin also became gradually less, and ultimately disappeared. Quite an important observation was this, that the use of "beef-tea" or "beef-essence," as prepared at home, invariably increased the albuminuria.

Contrasting these cases I would call attention to the fact that although in the matter of family history and age the second case would be regarded as the more unfavorable, yet in it the albumin disappeared altogether, while in the first it is still intermittently present.

These cases I regard as illustrating a class in which, although there is albuminuria, its subjects have not renal disease and are insurable risks. Such conclusion is, however, based upon a study of the cases extending over months in the one instance, and years in the other, a study which is seldom, if ever, possible to the ordinary medical examiner. There can be no doubt, however, that could a set of rules be laid down for his guidance the well-trained examiner might save to his company a certain number of risks which are now lost by it. Unfortunately from necessity perhaps, at the present day, the majority of medical examiners are neither well educated nor well trained. Supposing, however, that these important desiderata are attained, as it is reasonable to believe they will at no distant day, are there any conditions which if observed will enable the companies to secure these risks which are now rejected? I believe there are and I submit them to your consideration.

First. It is scarcely necessary to say that the applicant must in all other respects present the signs of good health.

Second. The albuminuria should be unaccompanied by tube casts. However perfect may appear the health of an applicant with albuminuria, the presence of casts in his urine must effectually close the gates of life insurance against him. Casts and albumin conjoined can receive only one interpretation—structural change in the kidney either acute or chronic. Here, however, let me say I have known men with good medical education say that casts were passed in a given specimen when there were none; certain granular aggregations having been mistaken for them.

Third. If the quantity of albumin is large, the applicant should be rejected irrespective of the presence of casts. The term large albuminuria admits, of course, of considerable latitude in its application; but I should say that an albuminuria is large in which the albumin habitually exceeds one-fifth the bulk of the specimen examined.

Fourth. A consideration which goes far toward establishing the functional character of an albuminuria, although not essential to this end, is the absence of albumin on rising in the morning. Nor dare it, of course, be said that such an albuminuria precludes the existence of organic disease. It must be taken in connection with the other considerations mentioned.

A *fifth* point of importance is specific gravity, meaning thereby the specific gravity of the twenty-four hours' urine, or what my friend Dr. Charles W. Purdy, of Chicago, calls the "real" specific gravity. The specific gravity of any portion of the twenty-four hours' urine, or the "apparent" specific gravity, is of limited value, varying greatly with the time of day and relation to meals. If we regard the specific gravity of a normal twenty-four hours' urine (say 50 oz.) as 1.020, the following may be laid down: *albuminuria is least significant when the specific gravity is high*, throwing out, of course, the consideration of sugar. The specific gravity is a direct measure of the solids, which in health are strikingly constant for each twenty-four hours, while the same is true in a less degree of the watery part of the secretion. Hence, the specific gravity of the twenty-four hours' urine is tolerably constant.

In all forms of renal disease the solids are diminished, and in all except acute nephritis and cyanotic induration the specific gravity is lowered. In these two it is lowered because in them the quantity of urine is also markedly less, and, in consequence, the specific gravity is increased to 1.028 and even higher. In acute nephritis the presence of blood may also contribute to such specific gravity. Strictly speaking, acute nephritis may be ignored, because no one ill of it is likely ever to apply for life insurance. In functional albuminuria the specific gravity remains normal. Dr. Purdy even says that his observations in many of these cases show a specific gravity above the normal standard, reaching 1.022 to 1.030.

Whenever, therefore, in addition to the absence of other symptoms and signs alluded to, the "real" specific gravity is above 1.020, another most important fact is in evidence against the presence of organic disease and in favor of the view that the albuminuria is functional. On the other hand, if the real specific gravity of the urine be 1.012, 1.010, 1.008, or even less, as it sometimes is, it would be hazardous to accept such a case of albuminuria, however good may be the apparent health of the applicant and even in the absence of casts. To judge unfavorably from the specific gravity of any portion of the twenty-four hours would be exceedingly unfair to the candidate.

Sixth. The signs of hypertrophy of the left ventricle and of high vascular tension associated with albuminuria are conclusive symptoms of renal disease and should exclude the candidate. High vascular tension may sometimes be shown to exist by the sphygmograph, even when not appreciable to the touch.

Seventh. A highly important consideration is the age of the candidate. Albuminuria is much less apt to be of the functional kind in persons over forty years of age than in those who are younger, especially between the ages of twenty-one and thirty-five. It is questionable whether any person with seemingly functional albuminuria who has reached the age of forty should be accepted unless he has been long under the observation of a competent and conscientious observer.

Eighth. The presence of true gout in any shape precludes admission to life insurance, because gout is always sooner or later followed by interstitial nephritis.

Finally. The retinal symptoms so commonly associated with chronic Bright's disease, although usually late in their appearance, do sometimes form the earliest noted sign of this affection, and whether or not conjoined with albuminuria must effectually exclude the candidate from its advantages.

These, in brief, are the conditions which, if observed, appear to me to enable one to establish conclusively the functional character of an albuminuria, the presence of which should not exclude a candidate from life assurance. They might have been further elaborated, but I prefer to leave them to be discussed as presented. It is to be remembered, however, that observations should extend over a considerable period of time, also that there is reasonable doubt as to whether the requisite knowledge and training are sufficiently general to secure intelligent recognition of the conditions. Take, for example, so simple a matter as examining for tube casts, which may be regarded as almost the easiest sort of microscopical work. Yet, how few medical examiners are competent to make such examinations. Most of them have no microscopes, and many who have them use them so rarely that their opinion whether positive or negative as to the presence of casts cannot be relied upon. On the other hand, there are those who are competent to apply these conditions, and it is reasonable to suppose that this number will gradually increase.

I conclude, therefore, that life assurance associations should recognize a condition of functional albuminuria out of consideration of their own interests, as well as in justice to a class which is coming to be recognized as more numerous as our knowledge increases, and who are blindly excluded from benefits to which they are entitled.

CHRONIC INTERSTITIAL NEPHRITIS AND ANGINA PECTORIS.[1]

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The subject which I propose to consider in this paper is the relation between certain symptoms referable to the kidneys, and certain other painful and oppressive symptoms relating to the heart.

The former of these two groups of symptoms consists of the occasional presence of albumin in the urine, the occasional occurrence of tube-casts, commonly of a fine granular or hyaline character, and, in general, a low specific gravity of the urine; signs pointing to that form of Bright's disease which is pathologically a chronic interstitial nephritis. The latter group is made up of a feeling of constriction in the chest more or less constantly present, sometimes in moderate degree and sometimes so greatly intensified as to be an acute agony, or an anguish even deeper than that, "a sense of ruin which is worse than pain, a masterful negation and collapse," a feeling of impending dissolution; the condition, in a word, to which the term angina pectoris is commonly applied, and with the emotional as well as the sensory phenomena belonging to that dire disease.

[1] Read before the Association of American Physicians, Washington, 1888.

Each one of these groups of symptoms is, taken by itself, almost a commonplace of medical experience; but their association with each other is perhaps not very frequently met with, and yet must be occasionally encountered by physicians in general practice. How are they correlated with each other? Is the connection merely an incidental one, so that the anginoid symptoms might have occurred in any given case even had there been no renal disease? Is the condition indicated by the signs referable to the kidneys the direct cause of the cardiac symptoms? Or is there anything in the state of a heart laboring under such symptoms which may directly or indirectly determine albuminuria?

It is well known that some forms of Bright's disease are likely to cause, or at least to be associated with organic changes in the heart, and the manner in which such cardiac changes are brought about has been the subject of much ingenious speculation and able argument, as instanced most recently in the thoughtful and suggestive Middleton-Goldsmith lecture of Professor DaCosta.

It is equally true that an organic change in the heart resulting in dilatation of the organ and general venous stasis may determine secondary disease of the kidneys. But the cases which I have in view would not seem to belong to either of these categories. They may occur without any hypertrophy of the heart ascribable to the renal disease, if it be admitted that the latter can cause such cardiac change, and they may occur also without any such dilatation of the heart as could of itself have produced passive renal congestion. Are both groups of symptoms the results of a common cause acting upon both of the involved organs? I ask the question, but I propose to consider the subject chiefly from a clinical point of view, narrating some of the cases in which I have observed these conjoint symptoms, suggesting perhaps some explanation of them, but trusting that they may receive from others a more complete pathological interpretation than I am myself able to offer.

In the first place I would state that, so far as my reading goes, there is no express mention of a relation between these maladies in any systematic treatise upon the subjects.

Heberden, who first described angina pectoris and gave it the name by which it has been known since his day, states that he had seen nearly a hundred persons suffering with the disease, yet he makes no reference to dropsical symptoms as ever attending it. This he would probably have done had he observed them, though, of course, without associating them with kidney disease, as his observations were anterior to the existence of renal pathology.

In Dr. John Blackall's report of cases of angina pectoris appended to his work on *Dropsies*, which was published before the year 1820, he quotes an account of the case of Lord Clarendon, who died of angina pectoris occurring with symptoms which, as Dr. Blackall says, "rendered probable the existence of some disorder of the urinary organs." These symptoms were great frequency of micturition occurring without pain in the urinary organs themselves, but with intense pain in the left arm. "The circumstances" says Blackall, "have been scarce heard of before, and the causes are not yet understood by any physician."[1] It would seem not unlikely that in this case the morbid state of the urinary organs unattended with pain was chronic interstitial nephritis which is so often accompanied with increased frequency of micturition.

To come to a somewhat later time we find no mention of the combination of the heart and kidney symptoms in Sir John Forbes's masterly article on angina pectoris in the *Cyclopædia of Practical Medicine*.

Professor Gairdner, in his very elaborate and able discussion of angina in Reynolds's *System of Medicine*, merely remarks that "renal disease forms a very serious and often unmanageable complication" of angina;[2] as it certainly does, especially if it give rise to pulmonary œdema; but he does not refer to any pathological connection between the renal and cardiac changes. Nor does any systematic writer, so far as I have been able to ascertain. And yet in several authors there are observations which might have led to the thought of a connection between the two diseases. Thus Gairdner remarks that Lauder Brunton's case in which the value of nitrite of amyl in angina was first made known, "shows a correlation of some kind between angina-like paroxysms and increased arterial tension;" and it is well known that increased arterial tension is common in Bright's disease. Indeed, Brunton himself, in his statement of the therapeutic applications of nitroglycerine, after referring to its use in angina pectoris, says that "it is useful when the heart is weak, or when the tension is abnormally high, as in Bright's disease."[3]

The consideration of the therapeutic fact that the same agent is beneficial in the two diseases, and in the same way apparently—that is, by lessening arterial tension, might suggest a relation of some kind between them. Still nearer the mark is an observation of Strümpell, in his account of the chronic contracted kidney, that "the long-known asthma of renal disease, often termed, without reason, 'uræmic asthma,' does not always have the same origin. It usually depends upon cardiac weakness, and is a genuine cardiac asthma, *corresponding precisely* to angina pectoris in its different

[1] Blackall on Dropsies, p. 255.
[2] Reynolds's, vol. iv. p. 546.
[3] Brunton's Therapeutics, p. 669.

symptoms."[1] But he does not attempt to trace a pathological connection between the diseases.

One case of coexistence of angina pectoris and Bright's disease, closely resembling those I have myself observed, is reported by Dr. Von Russdorf, of Berlin.[2]

I have selected from my note-book the following cases as illustrative of the combination of diseases to which this paper refers:

Case I.—G. A., female, seventy-one years old, had for more than a year been failing in strength and appetite, becoming pallid in hue and troubled with a feeling of constriction and oppression in the chest, especially referred to the cardiac region. Occasionally there was slight swelling about the ankles, transient in duration, and disappearing entirely at intervals. On auscultation, there was no evidence of pulmonary trouble of any kind, nor did the heart show any sign of valvular disease, but its action was habitually and markedly weak. The urine showed at times slight traces of albumin, which again would entirely disappear, and there were occasional fine granular and hyaline casts—never abundant, and often absent or not discoverable even when a rigid search was made for them. The specific gravity of the urine ranged from 1.012 to 1.015. The diagnosis was that of chronic contracted kidney.

The distressing sense of constriction in the chest increased in degree and persistence, until the 23d of March, 1886, when I was urgently summoned to the patient, and found her suffering with agonizing pain in the region of the heart, extending down the left arm. The expression and color of the face were characteristic of angina pectoris. This pain was promptly relieved by a hypodermatic injection of morphia; but at various times it occurred, though with less violence than at first, while the sense of constriction and oppression in the chest, which had been felt for several months before the severe attack, became more constant. This form of suffering was, however, controlled to a considerable degree by the administration of nitroglycerine in the dose of $\frac{1}{100}$ of a grain three or four times a day. In order to test the value of this remedy, after administering it for two or three days in succession, and until the patient had been apparently relieved entirely of the constrictive pain in the chest, I would withdraw it, when, in a day or sometime in two days, she would request its use again. "Give me my little pills," she would say, and again would experience the desired relief from them. She was provided also with pearls of nitrite of amyl in case of the recurrence of an attack of great severity, and occasionally had recourse to them. And so the contest with two mortal maladies went on, in which, in view of the patient's age and the nature of the diseases, little could be done beyond relieving suffering and endeavoring to promote euthanasia, when, on November 19th, or about seven months and a half after the first acute paroxysm, the patient, on walking from her bed to a chair, sank into it and expired.

In this case the symptoms of angina pectoris were classically marked, as were those of Bright's disease in the form, apparently, of the chronic contracted kidney, as shown by the intermittent occurrence of albumin in the urine, the occasional presence and frequent absence of tube-casts, and the small amount of dropsy. There was no opportunity of making a post-mortem examination.

Case II.—N. B., sixty-four years old, a merchant by occupation, consulted me in November, 1887, for oppressed breathing and a painful sense of constriction in the chest, extending to the left arm, and felt, in general, only when walking, especially when walking up hill or up stairs. Auscultation showed no valvular change in the heart, but its action was weak, and at that time there was no sign of pulmonary disease. Examination of the urine gave a negative response as to the existence of disease in the kidneys, but a few weeks later it showed a cloudy trace of albumin and scanty hyaline and fine granular casts. Later repeated examinations showed sometimes the presence and sometimes the absence of these signs, as is common in chronic interstitial nephritis. The patient was troubled with constipation, and was often imprudent in eating; and the regulation of the bowels, together with restriction for a time to a milk diet, produced a marked improvement in the breathing and a lessening of the constrictive pain in walking. At the same time he was put upon the use of $\frac{1}{20}$ of a grain of arseniate of iron three times a day. In January, 1888, anasarca appeared in the lower limbs as well as slight effusion in the pleural sacs and patches of pulmonary œdema. These symptoms abated under the influence of digitalis and tincture of the chloride of iron.

The weather in Baltimore being at that season very unfavorable for one in the patient's condition, he went, by my advice, to the milder climate of Thomasville, Georgia, where he consulted Professor John T. Metcalfe. This gentleman wrote to me that he detected in the patient's lungs the presence still of some œdema in scattered spots, and he stated that he had frequently met with this patchy sort of œdema in Bright's disease, and thought it somewhat characteristic of the malady. I believe it often is so, and perhaps it is analogous to another localized form of dropsy occurring in the same disease, that, viz., in the lower eyelids. In April the patient returned from Georgia, and in the drier and warmer weather of the spring and summer he has somewhat improved; the effusion in the pleural cavities, the lungs, and the lower extremities has disappeared; but the chemical and microscopical signs of renal disease still exist, and he still suffers occasionally with attacks of angina. On July 19, 1888, albumin was present in the urine to the amount of two per cent. by volume; there were a few hyaline casts, and the specific gravity was 1.015. On August 18th, there was three per cent. of albumin by volume, no casts, and a specific gravity of 1.011.

In this case, again, the coexistence of the symptoms of angina pectoris and of chronic contracted kidney is plainly shown.

[1] Strümpell's Text-book, Amer. edit., p. 808.
[2] Deutsche Klinik, vol. xviii. p. 375.

Case III. — J. W., sixty-three years of age, a physician by profession, was able to appreciate the full significance of all the symptoms belonging to his mortal maladies and to meet them with fortitude. He had been failing in health and growing weak and anæmic for many months, when in February, 1888, I was invited by his attendant physician to see him in consultation. The most prominent symptoms then existing were great oppression and sense of weight in the cardiac region, with attacks of acute pain in the same situation so severe as to render the hypodermatic use of morphia necessary, and also the inhalation of nitrite of amyl, from which temporary relief was gotten. The administration of nitroglycerine was without effect. Dyspnœa was frequently urgent, but was not dependent upon any change in the lungs or heart discoverable by auscultation. Anasarca in moderate degree sometimes appeared in the lower limbs, but was transient in duration. The urine was examined many times, often presenting nothing abnormal, but occasionally showing slight cloudiness when tested for albumin, and sparse hyaline casts under the microscope. Yet the presence of these at all, though infrequent, taken in connection with the character of the breathing and the anasarca, pointed to the existence of chronic contracted kidney, while the breast pang showed angina pectoris. No remedies stayed the progress of his organic disease; but little and only temporary relief could be given to the attendant pain and difficult breathing, and on the 8th of April he died.

At the *post-mortem* examination the kidneys were found to be diminished in size, chiefly at the expense of the cortical portion, and their capsules somewhat adherent, though not to so great an extent as is usual in a more advanced stage of atrophic change. The heart was distended by coagula, giving it the appearance of being enlarged before it was opened, but the ventricular walls were attenuated and large fibroid patches were found under the endocardium of the left ventricle. The coronary arteries were both in a state of fibroid degeneration; the right artery being completely occluded by softened fibrous and atheromatous material, and the left so much obstructed that it was only slightly pervious. This degree of obstruction must necessarily have caused great cardiac ischæmia. An aneurismal dilatation of the aorta of the size of a large egg, with atheromatous walls was found just below the cœliac axis.

Of the three cases here reported, in the first no post-mortem examination could be made. The second is that of a patient still living. In the third the diagnosis of the condition of the kidneys made in life was confirmed by the post-mortem examination, which also showed changes in the heart not positively diagnosticable, but entirely in accordance with the cardiac symptoms observed, and perfectly explaining them.

It seems a fairly probable inference that inasmuch as Cases I. and II. corresponded in the combination of their symptoms closely with Case III., the same or closely similar changes to those found in Case III. existed in Case I., and exist now in Case II.

There would certainly be no reason for regarding the changes in the heart belonging to Case III., and probably belonging also to Case I. and II., as in any way causative of the diseased state of the kidneys. And, on the other hand, there would be no reason for regarding the kidney disease in Case III. as productive of the cardiac symptoms through uræmic poisoning or any merely functional disturbance, when positive organic change fully accounting for the cardiac symptoms was found. If uræmia acting on the heart ganglia were the source of trouble in the same way that it occasions such disturbances as convulsions and coma by its influence on other nervous centres, then these heart symptoms might be expected to be as frequent as are the cerebral symptoms of Bright's disease, which they certainly are not. Nor, again, is it easy to see how the kidney disease could have been the direct cause of the organic change in the heart and the symptoms due to it. Bright's disease may, it is true, give rise to endocardial inflammation and to consequent changes in the cardiac valves: but in the cases referred to no such changes existed, and, therefore, the kidney disease could not have held a causal relation to the angina by producing such valvular lesions.

The morbid changes most commonly found in connection with angina pectoris are obstruction of the coronary arteries, insufficiency of the aortic valves, or rigidity of the aorta, possibly interfering with the filling of the coronaries, and fatty or fibroid degeneration of the heart. Any one of these pathological conditions may give rise to cardiac ischæmia, which is most probably the immediate cause on which the angina depends. Cardiac ischæmia is more directly brought about by obstructive disease of the coronaries than by any other lesion, though atheroma or sclerosis of the aorta may accomplish the same result, as may also endo-arteritis or peri-arteritis of the heart arterioles by preventing sufficient blood from entering the myocardium, even though there may be no coronary obstruction. According to the statistics of Sir John Forbes, coronary disease was found in seventeen out of forty-five cases, or more than one-third.[1] Lussana gives twenty-one cases of coronary obstruction in thirty-six fatal cases of angina;[2] and Liegeois, whose researches are later and probably comprise a larger number of cases, states that three-fourths of all cases may be attributed to atheroma or sclerosis of the coronaries or aorta, or both.[3]

Now all these are degenerative changes, and ap-

[1] Cyclopædia of Practice of Medicine, vol. i. p. 107.

[2] Virchow's Handbuch, vol. ii. p. 422.

[3] Bull. Med. des Vosges.

parently they cannot be directly attributable to any renal disease. It would seem more probable, therefore, that the change in the heart giving rise to the symptoms of angina is, as is ably maintained by Professor Da Costa in reference to the cardiac hypertrophy of Bright's disease, not the direct consequence of that disease, but a part of a general degenerative change, of which one expression is manifested in the heart and another in the kidney. As Russdorf remarks in the report of his case, "the renal change is the last stage of a slow process of disease, of which the beginning was in the heart."

And, perhaps, if we are inclined to believe with Dr. Da Costa and Dr. Longstreth, that "it is in the nervous system that we are to search for the original source of the malady," we may think that some further probability is lent to this view by the pathological fact of the increased arterial tension found both in Bright's disease and in angina pectoris, and due to a change in the vaso-motor system, and possibly in the cervical ganglion, and the further therapeutic fact that nitroglycerine, which lessens this tension, has proved beneficial in both affections.

IMAGINARY LINGUAL ULCERATION.[1]

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"Imaginary lingual ulceration," with its demoralizing pain and indefinite terrors, is very real to the sufferer, while to the physician the almost utter futility of his present therapeutic resources for its relief renders the affection one of more than passing interest and importance.

These two reasons alone, even if others did not exist, would justify my bringing the subject briefly before you for discussion, which I now do, in the hope and belief that light may be shed, especially upon the vexed questions of etiology and therapeusis.

"Imaginary lingual ulceration" — recently so named by Verneuil—although a comparatively rare affection, is doubtless well known by some name or under some form to many of you. It presents no complex symptoms; its local lesions, if any exist, are often indefinite; still the diagnosis usually admits of no doubt, and the clinical history, taken alone, is distinctive.

A patient, male or female, as the case may be, for the affection occurs with equal frequency in the sexes, and from thirty-five to fifty years of age, presents himself complaining of intense pain, usually of a lancinating or darting character, limited to one-half of the tongue, usually the left, and extending from its base, just opposite and below the tonsil forward to its tip, or the pain may be more circumscribed and limited to the junction of the posterior with the middle third of the organ, at or near the location of the posterior lenticular papilla. It is more or less intermittent, rarely constant; is aggravated by movements of the tongue, although these are free; is often increased by the act of mastication and excited by hot or irritating articles of food. Its effect upon the patient is demoralizing, his imagination plays him false, his terrors are aroused, and injudicious medical or surgical interference and advice, instead of allaying both mental and physical disturbance, not infrequently excite them; the fear of cancer, and the belief, which remains unshaken, that ulceration actually exists, constitute an integral part and important factor in this curious affection.

Such patients, however, are not invariably hypochondriacal, as has been asserted; on the contrary, the affection is met with in those who present no evidences of a neurotic or even nervous temperament; it is occasionally seen in individuals possessing and presenting all the signs of robust health, and the mistake has been made, and is made to-day, of ascribing alone to the imaginative fears of the patient what actually exists as an undoubted, if not always demonstrable, physical and painful fact.

Subjective symptoms, other than the pain as described and occasionally slight salivation, if it be excessive, do not exist.

Careful physical examination reveals but little or nothing to guide us to a diagnosis, especially if the tongue, at its affected point, has not been tampered with by local and irritant applications. If drawn forth from the mouth and extended to the opposite side from that on which the local point of pain is complained of, it usually presents a normal appearance; the surgeon's attention being directed, as it always is, by the patient to a point on the line of demarcation between the roughened epithelium of the dorsum of the organ and the smooth mucous membrane below, a lateral line, which is marked near the tonsil by the invariable presence of a few delicate papillæ. These will be found of natural number, size, and color, subject to normal variations in different individuals. If irritation has been caused, these papillæ will be seen swollen, reddened, and associated with lateral inflammatory enlargement of the tongue to a greater or less extent, pain is increased and constantly aggravated by the swollen tongue being impinged upon by the teeth during mastication. Lesions of a catarrhal nature, which commonly coexist in naso-pharynx, pharynx, and perhaps larynx or tonsils, are not of such a character or grade, as a rule, as to influence a part so remote and indirectly connected, nor are they such as to excite a plausible suspicion as to a possible reflex character of the tongue disturbance.

Such is a brief physical sketch of the affection

[1] A paper read at the Tenth Annual Meeting of the American Laryngological Association.

which we have named "imaginary lingual ulceration." A fanciful term, perhaps, as ulceration rarely if ever exists, but certainly descriptive enough from our, and truthfully exact from the patient's, point of view, to warrant its being retained.

In passing to the question of causation, we are at once involved in a multitude of hypotheses, bewildered by more or less plausible explanations, and confronted by a variety of views. No unanimity of opinion exists. From the little that is found in literature concerning the affection, I select the following, first recording my own opinion, based upon experience, that to regard it and to dismiss it at once as a fanciful conceit on the part of the patient, is a grave mistake, and that relief of the real suffering that undoubtedly often exists—granted that this may be in part mental—is not and cannot be attained by such a course.

Verneuil (*Acad. de Méd. de Paris*, July 27 and October 4, 1887), and I believe Labbé, regard the disease as a purely neuralgic affection of the tongue, and compare it to an affection of the breast, described by Velpeau under the name of imaginary tumor of the breast, which, like the above-named disease, is also characterized by intense local pain without any appreciable lesion.

Fournier, Lollé, Hardy, Luys, and Magitot all agree to regard the symptoms as hypochondriacal.

Poyet (*Journ. des Conn. Méd.*, October 20, 1887), from whom I quote, says that the delusion may almost always be referred to one of four causes. In the first class of cases there is a neuralgia of the tongue, and the pain leads the sufferer to believe that ulceration exists. In the second class are patients who have read or heard of some person afflicted with cancer, and have been led thereby to examine their own tongues. They notice, perhaps, a somewhat prominent papilla, and their fears lead them to the conclusion that it is the edge of an ulcer or a commencing cancer. Others are hypochondriacs, pure and simple, and are so convinced that there is an ulcer present, that no amount of argument or demonstration can convince them of their error. Finally, certain patients, with lingual psoriasis, discover the white patch on their tongue and think that ulceration is present.

These old-time views, representing but one side of the question, I present, for the moment, without comment.

Albert (*Wiener med. Presse*, Nos. 1 to 6, 1885) ascribes the pain to the presence of "irritable papillæ in the *regio foliata*." But cases are certainly met with in which none of these hypotheses covers the diagnostic ground. Cases such as I have described above, not neurotic, not imaginative, of good general physical condition, cases in which all possible or probable sources of local irritation have been removed, such as decayed, irregular, or ragged teeth which press upon the tongue, teeth filled with amalgam, which possibly chemically affect it, diseases of the gums, which have been claimed by recent writers to be efficient cause for reflex neuroses of distant parts, but still pain persists. *Why*, is the question that we must ask ourselves. Are general causes at work of which we at present know nothing? Can a rheumatic or gouty diathesis with such local manifestations be at fault? Doubtless such cases exist. I have seen and treated them successfully; but they are limited in number. Must we then be driven, by our etiological uncertainty, into that indefinite and unsatisfactory but comfortable diagnostic haven of "neuralgia?"

I have alluded to the common plan of treatment: the patient is classed as hypochondriacal, nervous, fanciful; his sufferings regarded as unreal and possessing actuality in his imagination alone, and as a *placebo* local applications of a caustic nature are made to the lingual papillæ, whether these be enlarged or not, in the hope of curing the supposed growth. The results are such as to increase rather than alleviate pain, and only serve to confirm the patient in his delusion, should this exist. Still more, these results of injudicious treatment may pass, as I have seen, beyond the limit of mere irritation into a stage of actual ulceration, suspicious induration, and dangerous extension, with glandular involvement.

To such a vulnerable organ as the tongue, the danger of such a course cannot be overestimated, nor its adoption too strongly condemned. That it is unscientific and ineffectual requires no demonstration.

Applications of cocaine or of aconite sometimes succeed, often fail; and the same is true of the various treatments with which we are familiar, usually pursued in neuralgias of other parts of the body. Electricity is usually of service. Hypodermatic injections of analgesic drugs have been recommended. More radical procedures have their advocates in cases in which milder means have failed. Cauterization with the thermo-cautery and destruction of the calciform papillæ sometimes, not always, found upon the tongue in such cases. Poyet recommends such a course, or some other painful application, solely for its moral effect; the danger and futility of such a procedure we have seen.

Neurotomy must be discarded, not alone on account of the difficulty attending such an operation in this particular locality, but mainly because of the impossibility of proving whether the lingual or the glosso-pharyngeal nerve is the one at fault.

While thus criticising my own treatment, with its few successes and many failures, and reviewing that of others, I regret that experience has taught me nothing that is uniformly successful in its results to recommend, and my intention has been, in bringing this rare and curious affection before you for discus-

sion, to place it in what I regard as its true light and to profit by your therapeutical experience in its treatment.

Ample room exists to-day for improvement in our methods, and increase in our means directed toward this end.

TWO CASES OF EPILEPSIA PROCURSIVA.

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RUNNING epilepsy is so rarely seen even by neurologists that the following cases may be of interest and are certainly worthy of record:

CASE I. was as follows: Girl, aged eight years, the child of healthy parents, was brought to me by her mother who stated that the child would give a scream and then suddenly dart out of the house into the crowded street and run one or two hundred yards, when she would return to herself dazed and unable to find her home, rather because of her surprise at her new surroundings than an absolute lack of intelligence. At the time I saw the case the attacks were so frequent as to prevent the mother from performing her work, because of the constant watching necessary. In other words, the attacks occurred several times a day. If held so that escape was impossible, the girl struggled to get away, but there were no fits of the ordinary character at any time. There was never any coma after the attacks, no incontinence of urine or feces. There was no history of any cause of the disease so far as could be discovered. The mother was told to bring the child back in one week, but failed to do so and all trace was lost of the case.

CASE II. is as follows: Jesse ——, aged fourteen years, is a strong and apparently healthy boy, of healthy parents. He is a remarkably well-built and manly looking fellow of more than the usual height and weight and is well proportioned. His complexion and color are good and he is notorious at school for his brightness and acuteness in learning his lessons. He is not one of those typically "bright boys" who look as if highly strung, but is perfectly normal so far as his appearance is concerned. He was entirely devoid of any morbid condition until just one year ago, when the first fit took place. The history of his life gives no record which can be, in any way, considered as a cause of his present trouble, save that when he was about six years of age he was struck on the back of the head by another boy who was much larger than himself with a heavy club. No unconsciousness was produced, but blood flowed freely from the wound, the scar of which is still to be seen about two centimetres downward and to the right of the occipital protuberance. No secondary effects ensued from this stroke, but exactly two years ago he was struck while at play on the head within two centimetres of the former scar. The blow felled him to the ground and produced unconsciousness lasting for some minutes.

One year ago, almost on the anniversary of this last blow, he was down in the cellar of his father's house and suddenly rushed up stairs and sat on the kitchen table, muttering, and moving his legs, and apparently unconscious of his surroundings. There was no coma, nor headache after this attack and he seemed perfectly well. The other attacks have since occurred either once or twice a week or even less frequently at certain times. When they occur in the daytime they invariably consist in a sudden run across the room ending sometimes in a fall to the floor, but there are no spasms when he falls. One week ago he was sent to a store for some nails. He entered, asked for the nails, and then suddenly darted out into the street, throwing his money away as he ran. The distance traversed before he was caught was about one hundred yards. When stopped by the storekeeper who followed him, he strove to escape, but a moment after regained consciousness and was absolutely ignorant of how he reached his new surroundings.

Up to this time the writer had never seen him in an attack but on the day this was written, while he was being taken up stairs in the University Hospital in order to be shown to the class, he was seized with a paroxysm in which the following symptoms were noted. The head was drawn slightly to the left, the right shoulder thrown forward and upward and he assumed the position of one about to start on a foot race. He was seized instantly but used the utmost effort to escape, the efforts being ineffectual chiefly because they were lacking in intelligence, but the movements of the legs, although he was held, were running movements finally deteriorating into struggles such as those of an angry child trying to break away from a parent. The entire attack was accompanied by muttering and at the beginning of it the saliva poured from his mouth. The aura in this attack was distinctly visual and consisted in total blindness. Indeed, at the first part of the attack he groped blindly about for something to clutch. This condition of blindness has formed the aura in every fit, so far as can be learned from the boy and his parents. There was no incontinence of urine or feces. The transient stage from unconsciousness to intellection was but momentary and could not have lasted over sixty seconds. The mental clouding after the attack was so slight and transient as to be scarcely noticeable. He has had several nocturnal attacks consisting in turning and twisting in the bed with muttering but no running movements. An interesting fact in regard to the case is that while ten grains of bromide of potash three times a day failed to control the attacks, antifebrin in doses of five grains three times a day produced an intermission of one week which might have been much longer had not the fright of going before a class precipitated an attack.

Unfortunately this case, like its predecessor, promised to return for an ocular examination but failed to appear, and frequent requests have been so persistently disregarded that I have given up all hope of obtaining it as the parents do not seem to regard the disease as being more than a slight annoyance.

CHEYNE-STOKES RESPIRATION.

A Report of Three Cases, with Remarks.

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CASE I.—On December 11th last, I received a telephone message to call upon Mr. C. S., white, married, American-born, aged forty-seven. About 5.30 that same morning, while engaged in wheeling a loaded wheelbarrow on a scaffolding, a portion of the structure fell with him, and caused the barrow to fall upon him striking him in the abdomen. The fall was not over three feet, and he was able to pick himself up almost immediately and extricate himself and his load. Despite considerable shock, he was able to work until late in the afternoon. About 3 P. M. he complained of headache and nausea, grew faint, and for a couple of hours felt unable to attend to his duties, but succeeded in walking to his home, a quarter of a mile away. I saw him about 7 P. M., and found him lying in bed; his mind was somewhat confused, his pulse was about 95, rather hard and full, and his respirations of the Cheyne-Stokes description; the period of breathing and of apnœa occupying the same intervals, some twenty to twenty-five seconds, the number of respirations during each series being fifteen to twenty. The pupil was contracted (slightly) during the period of rest, but dilated during the respiratory paroxysm. Muscular power and movement of every description (arms, limbs, tongue, head, and trunk) were retained.

On being roused he complained bitterly of pain in the epigastrium, where he claimed the barrow struck him, and also of bruises on his legs and right hip. He was able to give an account, interrupted by lapses from which it was necessary to rouse him, of his accident and subsequent conduct. His head (the whole of it he claimed) ached slightly, but he was not conscious of having hit it, nor was any bruise of the scalp discernible. His kidneys worked freely, and there appeared no indications of uræmia, and he had no rigor.

The following day his condition was much the same, except that the peculiar respiration was more marked and the apnœic intervals longer. He partook of nourishment (there was no nausea or vomiting), his bowels were moved freely, his mind was more sluggish, but he did not recognize his wife, although able to answer questions intelligently. At the end of about eight days the Cheyne-Stokes respiration had gradually disappeared, and his condition was much improved. At the end of seven weeks he was able to be out of doors, and at this time (February 26, 1888) he is at work,[1] though feeling somewhat weak and "short of wind." He still suffers a little pain in the epigastrium, and claims a diminished power in the right hand and leg. This last was scarcely noticeable during the first week in bed, and was not a marked symptom at any time. His heart is quite weak in its impulse, evidently from excessive use of tobacco, and the pulse is very compressible. There is no indication of atheroma or valvular disease. Has always been thin and not vigorous. I have presented the symptoms in the order in which they claimed attention. The diagnosis was serous effusion particularly affecting the base and anterior vertex of the brain; but I am inclined to think that there was a small hemorrhage in the vicinity of the left ascending frontal convolution.

CASE II.—On December 31, 1887, I was called to see Mrs. A. U. L., white, married, American-born, aged about seventy-six. She was unconscious, and presented the unmistakable symptoms and history of cerebral hemorrhage; there being complete loss of power in right arm and leg. The medulla was evidently already affected, the breathing puffy. Cheyne-Stokes respiration was present, the periods of breathing and apnœa being about equally divided in regard to time, and the respiratory series being about thirty each time in number. The pulse beats numbered about 84, and remained about the same during my call. I had previously attended Mrs. L. for heart difficulty, there being marked evidence of fatty degeneration (atheromatous arteries, arcus senilis, attacks of difficult breathing, etc.). There seemed to be no marked valvular trouble. She had also suffered from a slight cerebral apoplexy a few weeks previous, with a very slight disturbance of motility on the side later affected. She died on the morning of January 3, 1888, there having been no particular change in her general condition, except that the intervals between the breathing spells gradually lengthened, the respiration became more stertorous, and there was a progressive loss of strength.

CASE III.—Early on the morning of January 1, 1888, I was summoned in consultation in the case of F. C. F., male, white, unmarried, American-born, aged twenty-seven. The patient had been in apparent health the day before, when, although somewhat inactive, he had walked some distance, played upon a piano, and seemed to be in a cheerful frame of mind. About 11 o'clock in the evening he had complained to a friend of severe pain in the back of his head; a physician was called and a small amount of anodyne administered. He retired between 11 and 12 P. M. At 3 A. M. his room-mate was aroused by his heavy breathing and he was found to be unconscious. The family physician was at once called, and at 5 o'clock I was sent for. Subsequently the physician who had first seen him arrived. Cheyne-Stokes respiration was well marked when the family physician arrived, and continued so up to the time of death, which occurred at about 10 o'clock the same morning. When I first saw him the interval of apnœa was longer than the breathing period, and this condition continued with slight fluctuations and a tendency toward increased apnœa, until his death. His extremities were cold, his pulse rather small but of somewhat increased tension, and frequently the pupils were strongly contracted and varied but slightly in calibre; he was completely unconscious. There were no indications of organic heart disease, but the heart's action was very feeble. He belonged to a somewhat neurotic family, was slight in build, and was an excessive cigarette-smoker. A diagnosis of cerebral meningitis was made and concurred in by all present. Subsequently it was learned that he

[1] He is now, August 18, 1888, in his usual health.

had received a sharp blow on the head by running against a telegraph pole while trying to catch a train the day before he was taken ill.

I have not attempted to give the symptoms or histories of these cases with any great minuteness, as that is not necessary for my purpose, which is simply to call attention to the accepted explanation of the causes of Cheyne-Stokes respiration. It seems to me that the classical theory of its causation is defective in certain respects, which I will explain later.

Dr. Cheyne first called attention to this peculiar alteration of the rhythm of respiration in 1818, and described it with great accuracy. In his case it was associated with fatty disease of the heart. Little attention was paid to the symptom until 1846. Dr. Stokes urged its significance as a sign of fatty degeneration of the heart, believing that it was a pathognomonic symptom of this affection, and that its presence indicated a fatal and speedy termination. Dr. Seaton Reid soon demonstrated that it might depend on valvular incompetency only, and Dr. Hayden has shown that it is probably present in about one-third of the cases of fatty degeneration of the heart (presumably those resulting in death are meant). He considered that atheroma of the aorta was the cause of its presence.

Later observers, with wider opportunities, have shown that this symptom is occasionally found in a considerable variety of diseases, relatively most often (it is asserted) in those diseases of the brain which give rise to compression in the neighborhood of the medulla oblongata. Thus it is found in cerebral hemorrhage, exudation, and tumors; it also occurs in uræmia, and in various cardiac diseases, including fatty degeneration, sclerosis of the coronary arteries, stenosis of the aortic or mitral valves; and may complicate abscess and congestion of the brain. Fräntzel, Leube, and Bernheim have reported cases in which it appeared after the administration of morphine; Biot after the use of bromide of potassium; and O'Neill after chloral. Fräntzel's case furnished Traube with the data for his classical remarks on the *rationale* of its causation. His theory is, that lack of arterial blood supply to the respiratory tract in the medulla (a characteristic common to these affections it is claimed) diminishes its irritability to such an extent that a much larger accumulation of carbonic acid in the blood than usual becomes necessary to excite the inspiratory stimulus, and that thus an interval occurs which is compensated for by increased action.

Traube's theory has two great faults; it does not show why the Cheyne-Stakes respiration should not be present in all cases which at times may produce it, and it does not explain why spasmodic compensatory activity of respiration should occur only in these cases of carbonic acid poisoning and under these special circumstances. Filehne, recognizing these deficiencies, extended Traube's hypothesis, and formulated the commonly accepted theory of its causation. He claimed that the vaso-motor centre must be more easily excited than the respiratory centre, and that the symptoms were caused as follows: "At the end of the respiratory pause there is a large disappearance of oxygen from the blood, carbonic acid has accumulated, the vaso-motor centre is thereby stimulated, and the arteries (the cerebral artery among the rest) at once contract; this produces a gradually increased anæmia of the respiratory centre, and inspiration becomes deeper; this, however, supplies the wanted oxygen to the blood; the arterial spasm is relieved, the anæmia of the respiratory centre passes off, and with it the exaggerated impulse to respiration and breathing once more becomes superficial," and with the cessation of the arterial spasm the stage of apnœa is again reached.

Filehne's theory is very ingenious, but I do not see that this explanation has relieved us from our embarrassment. First, he claims increased vaso-motor irritability. Does not this exist normally, as much as it can be demonstrated to exist in these special cases? Does not the sympathetic system (the heart being under its control), as a rule, persist longer in a condition of irritability than the voluntary system, or the semi-voluntary, which controls the lungs (it being the voluntary muscles which are concerned in respiration)? As an instance, the heart of a person asphyxiated by hanging continues to beat for some time after *efforts* at respiration have ceased. Second. He does not explain why a special cause for the symptom exists in some cases and not in others of the same disease. Why should not all cases of cerebral apoplexy or opium poisoning exhibit the Cheyne-Stokes respiration? It seems to me that the missing link, or rather the starting-point in the chain of causation is found in the equilibrium between the respiration and circulation being always disturbed by a relatively weak heart. In all the early cases cardiac degeneration or incompetency was noted. In all of those which I have been able to study personally or through notes, the heart has seemed to be the disturbing factor, even when the disease which has produced the special illness affected other parts. Cerebral hemorrhage, with which this variety of respiration is specially associated, naturally suggests a degenerated vascular system. Since the heart is found to be affected in so large a number of cases of this description, does not this fact offer a reasonable explanation of why certain cases of drug exhibition may or may not show it?

Without discussing the cases which I have instanced in detail, I may say that I believe that they all sustain this view of the situation, although two of them still further disprove the early claim of fatty degeneration of the heart being necessarily present. They seem also interesting as illustrating the range

of age and disease which may furnish this still not fully understood symptom. I am not aware that any one has hitherto pointed out this apparent connection between a *merely weak heart* and the Cheyne-Stokes respiration.

MEDICAL PROGRESS.

The Mortality of Abdominal Section.—At a late meeting of the Royal Medical and Chirurgical Society, Mr. W. A. Meredith (*Lancet*, October 27, 1888) read a paper, the purpose of which was to draw attention to certain points affecting the present death-rate after abdominal section, and with this view operations for ovarian growths were chosen, as being to some extent representative of the entire subject under consideration. As a basis for the inquiry, the results of the author's own work in this connection, amounting to 126 operations, were examined with regard to the chief causes influencing the mortality, special reference being made to the ten deaths which occurred in the series of 104 completed ovariotomies. All the operations were performed with strict antiseptic precautions, including the use of the carbolized spray. He was now less inclined than formerly to look upon the latter as an absolute essential to the safeguards of antiseptic abdominal surgery, but he still considered it valuable as the most convenient and effectual means of antiseptic irrigation at our disposal when dealing with the peritoneal cavity. Both ovaries were removed in seventeen cases, two of which terminated fatally, but in neither instance was the result in any way attributable to the removal of the second ovary. Complete enucleation was performed in five cases, all successful, the resulting rent in the broad ligament being closed by means of a continuous silk suture. He advocated the use of the drainage tube in all cases of ruptured or inflamed cysts, in any case in which irritating or septic fluid had escaped into the peritoneum, in all operations complicated by serious injury to bowel or urinary bladder, in every instance in which washing out had been resorted to, and in all cases of severe operation in middle-aged or elderly women. For washing out the peritoneum, where necessary, he advocated the use of plain, recently boiled water, cooled as required by the addition of a saturated solution of boric acid.

Discussing the mortality, he was inclined to believe that in a large series of cases the average death-rate would never be less than five or six per cent. Of the ten deaths in his series, two were from septicæmia, one from intestinal obstruction, one from hemorrhage, one from dysenteric diarrhœa, two from chest complications, and three from exhaustion; three of these deaths were from preventable causes. Twelve successful operations for the removal of the diseased uterine appendages were next reviewed. In seven patients, in whom both appendages were removed, complete arrest of menstruation followed. He had found that in cases of chronic ovarian mischief about ninety per cent. were the subjects of obstinate constipation, and in them tonic purgative treatment, by lessening pelvic congestion and preventing the formation of scybala, was followed by marked relief of symptoms. Included in a series of ten exploratory operations were two incomplete ovariotomies. Both patients had been tapped, and the death of one was directly due to the difficulties encountered in the attempt to separate universal adhesions which had resulted from this treatment.

In conclusion, it was shown that the increased success of abdominal section for ovarian disease during the past ten years was chiefly attributable to the diminution in the number of deaths from septicæmia. For purposes of comparison he took three successive groups of operations, which represented three separate periods during the last twelve years, and gave their average death-rate from septicæmia alone. In 100 consecutive cases taken from Sir Spencer Wells's work, when the clamp was used and before the employment of antiseptics, the mortality was ten, or one to every ten patients. In 150 cases recorded by Mr. Thornton in the sixty-fourth volume of the *Medical and Chirurgical Transactions*, which were treated antiseptically and with intra-peritoneal ligature of the pedicle, there were five deaths, or one to every thirty patients. In his own series of 104 cases there were two deaths, or one to every fifty-two patients. The chief factors which had contributed to this increased success, he thought, were as follows: (1) The general adoption of the intra-peritoneal treatment of the ovarian pedicle; (2) the application of the antiseptic system to abdominal surgery; (3) the gradual abandonment of the practice of tapping adbominal cysts; (4) the increase in our knowledge respecting the proper use and management of the drainage tube; (5) the recent introduction of the plan of freely washing out the peritoneal cavity in cases complicated by the extravasation of blood or other fluid.

Mr. Alban Doran had seen great advantages follow both the antiseptic and the non-antiseptic systems of treatment. He thus summed up the influences which he thought contributed to lessening the mortality after ovariotomy: The skill and experience of the operator; early operation; a good hospital and efficient nurses, amongst the latter emulation being a great factor in favor of good results; the use of antiseptics, not only for their own value, but because they drilled the operator into habits of forethought; drainage, when the tube was frequently pumped out; and gently flushing the peritoneum with a great bulk of warm fluid, which checked hemorrhage, washed out clots, and prevented shock by keeping the peritoneum warm. He condemned the use of a ward nail-brush, which he believed to be a frequent carrier of infection.

Mr. Knowsley Thornton objected to stitching up the rent in the peritoneal capsule after enucleation. A number of small vessels were torn; hemorrhage or serous effusion might occur into the sac, which led to tension, nerve disturbance, inflammation, and suppuration. If the rent was left open, the case did much better, as the fluid flowed into the peritoneum and was rapidly absorbed. Tapping of cysts should not be resorted to, the escape of fluid in some cases leading to infection of the peritoneum. Ruptured cysts rarely needed drainage if carefully sponged out. He thought that flushing often acted by breaking up septic material into tiny particles, which were unable to defend themselves against the power of the peritoneum. He maintained that efficiently performed oöphorectomies always stopped menstruation. In cases of ovarian disease it was only necessary to remove the troubled ovary or tube—not both. It was sufficient to empty the drainage tube once in twelve hours under the antiseptic method, but to do so every hour was not too often where no antiseptic was used.

Mr. Meredith replied that he did not consider the opening made in the broad ligament to enucleate a cyst was comparable with the peritoneal wound made in the removal of a kidney. Women at the menopause were passing through a critical time, when kidney trouble often developed, which would hinder ready absorption of peritoneal fluid; he was, therefore, inclined to extend the advantages of drainage to them. Flushing out the peritoneum not only checked hemorrhage, but also avoided the undue irritation of the membrane caused by excessive sponging.

For Enteritis in Infants.—

R.—Tr. nucis vomicæ . . . gtt. iij.
Syrupi krameriæ . . . ℥ss.
Syrupi cydonii . . . ℥ss.
Aquæ . . . . . ℥j.—M.

R—Potassii bromidi . . . . gr. viij.
Syrup of belladonna . . . ℥ss.
Syrup of peppermint . . ℥ss.
Aquæ . . . . . ℥j.—M.

Sig.—A teaspoonful of each of these to be given every hour alternately.—*L' Union Médical.*

Camphoric Acid in Inflammation of the Mucous Membranes.—Mosler, an assistant at the Medical Clinic at Greifswald, reports (*Deutsche med. Wochenschr.*) the results of the use of camphoric acid in the various catarrhs. Camphoric acid is an oxidation product prepared by the action of nitric acid on camphor; it crystallizes in colorless needles; it is with difficulty soluble in water, but readily in alcohol and ether; the taste is acid, astringent, and somewhat disagreeable. It is innocuous in small doses, and is only irritant to the gastric mucous membrane in large doses. Among the indications for its internal administration are the night-sweats of phthisis. In all of the seven cases observed by the author the influence was prompt and encouraged further investigation. Fifteen to thirty grains of the powdered, crystalline acid were given at night. Based upon its disinfecting and astringent action, camphoric acid was successfully used in a case of acute cystitis for three weeks (seven and a half grains, thrice daily); the large amounts of pus present in the urine almost entirely disappeared and the subjective condition remained satisfactory. Milder attacks of catarrh of the larynx and of the nose submitted after one to two weeks' application with a brush and a spray of one-half to one per cent. solutions (at first made with glycerin, but subsequently in bicarbonate of sodium). Inhalations of the one per cent. alkaline solution in phthisis and chronic bronchitis were followed by diminution of the irritation and expectoration, and rendered the expectoration easier. Washing out the bladder with a twenty per cent. alcoholic solution, diluted with lukewarm water to a half to one per cent., answered admirably in chronic cystitis.—*Wiener medizin. Presse*, No. 42, 1888.

Creolin.—The utility of creolin as an all-round remedy is summed up by Dr. Lichtwitz as follows: It is an antiseptic of high powers, a disinfectant, hemostatic, and non-poisonous, as large a dose as 120 grains having been taken with no bad results. In cases of tænia solium and oxyuris vermicularis, in 15 grain doses in capsules, it has proved beneficial; and in parasitic skin troubles and eczema, given in soap liniments, its action is especially efficacious. Internally it is recommended for all troubles of the digestive tube accompanied by fermentative processes, and when the stomach is the seat of cancer. In diseases of the larynx and trachea it may be given with advantage by inhalations, or the powder applied directly to the morbid tissues. There are many cases of ulcerative keratitis which it alleviates, but some in which it has no appreciable effect.—*Les Nouveaux Remèdes*, October, 1888.

Chromic Acid in Excessive Sweating.—A circular has been sent to all the Prussian Army medical officers, advocating chromic acid as an economical and efficient means of checking excessive perspiration. In hyperhidrosis of the feet the application of a ten per cent. solution, repeated every three or six weeks, is sufficient to prevent any inconvenience from this source.—*Medical Press*, October 24, 1888.

Impetigo.—The contagious nature of impetigo induces M. Eloy to insist upon the isolation of patients affected with it, and where this is impracticable, to have towels and brushes specially set aside for their use. The patient should bathe frequently in antiseptic water and apply the following ointment:

R.—Boric acid . . . . . gr. xv.
Vigo's ointment . . . . ℈iv.
Vaseline . . . . . ℥j.—M.

To be spread on fine linen and applied to the diseased surface.

Successful Splenectomy.—A successful splenectomy was performed on August 2d last, at the Charity Hospital, New Orleans, by Dr. G. B. Lawrason. The patient was a woman, aged thirty-one years, who had been under treatment for uterine fibroids. She presented a large tumor of the abdomen to the left of the median line, which was diagnosticated as an enlarged spleen. It was entirely unconnected with the uterus, and was very movable, and could be pushed upward under the left ribs, and as there seemed to be periodicity in the paroxysms of pain large doses of quinine were ordered to prevent them. The pains becoming more continuous, hypodermatic injections of strychnine and codeia were made twice daily in the spleen.

The patient obtained no benefit from the treatment and strongly begged to have the tumor removed. After some hesitation, on account of the great pain which it was causing and the comparatively favorable prognosis from the fact of its being a floating spleen, extirpation was decided upon. On August 2d the patient was chloroformed, and with the assistance of Drs. Souchon and Logan and members of the Hospital staff, the operation was performed. An incision was made in the median line, extending from about an inch above the umbilicus toward the symphysis, about seven inches in length. The spleen was found under the incision and removed by slipping it sideways. The pedicle proved to be about eight inches in length, and was very much twisted. The return circulation was so impeded that the veins were dilated to the size of intestines. Two ligatures were applied about

an inch apart and the pedicle divided between them, leaving a stump about six inches in length. The arteries and veins were tied separately in the stump as an additional safeguard against hemorrhage. No blood was lost, so the peritoneal cavity was closed immediately with fourteen sutures. The spleen weighed 54¼ ounces, measured 12½ inches in length, 7 inches transversely, and almost 4 inches at its thickest point.

On being drained of its blood it shrank nearly to normal size. On microscopic examination nothing abnormal was found. The recovery of the patient was uninterrupted until the 14th, the temperature not having risen above 99⅗°. On that date she had a severe chill, the temperature rose to 101°, and there was great pain referred to the left side. This was all easily controlled by quinine. On the 16th the patient was allowed to get up, the temperature and pulse were normal, and the appetite very good, but not exaggerated. The patient returned home the first of October, feeling perfectly well. During the operation after opening the abdominal cavity the pulse became very weak and rapid, but after removing the spleen it resumed its normal strength immediately. During the treatment three hypodermatic injections were given to produce rest; each time an abscess was formed at the seat of puncture.—*New Orleans Medical and Surgical Journal*, November, 1888.

For the Green Diarrhœa of Children.—For the diarrhœas of children, particularly for the green, undigested evacuations containing casein particles, Zinnis (*Union Méd.*) enjoins the withdrawal of all starchy food with the following prescription:

℞.—Aquæ fœnic. . . . . 75 parts.
Liquor. calcis . . . . 6 "
Bismuthi subnitrat. . . . 3 "
Syrup. aurantii flor. . . . 15 "—M.

S.—A dessertspoonful every two hours.—*Deutsche med. Wochenschrift*, September 6, 1888.

Management of Cerebral Hemorrhage.—Dr. Liégeois treats light attacks by absolute rest in bed in a shaded room, the head of the patient being elevated and all constriction removed. If the case is severe, he bleeds at the arm, whether the pulse is free or weak, and gives, later on, iodide of potassium internally. Counter-irritation in the form of sinapisms and vesicants, is applied to the chest and extremities, and cold dressings are used on the head every three or four hours. If the onset of the disease has followed a hearty meal, he gives an emetic of ipecacuanha.

When internal stimulation is desired, Hoffman's anodyne, ammonia, or ether, hypodermatically, are found the most reliable agents. For the two weeks following the apoplexy he regulates the diet, and if paralysis results he treats it by massage and electricity. For the more remote effects he relies on the iodide of lithium or sodium, and as the action of these drugs is debilitating to some patients, he adds a tonic of arsenious acid.—*Revue Générale de Chirurgie et de Thérapeutique.*

Intermittent Hemoptysis in Phthisical Subjects.—Dr. J. Lowenthal, of Frankfurt on Main, in No. 39 of the *Centralbl. für klin. Med.*, describes two cases of intermittent hemoptysis in phthisical patients, one of which had already been reported by Silber-Schmidt. In the first case there was no hereditary predisposition. There were dulness at the left apex and a cavern at the right. The sputum contained large numbers of bacilli tuberculosis. The liver and spleen were not enlarged. There were night-sweats and intermittent fever. On May 27th, at noon, an attack of cough and blood-spitting set in, some ten ounces of blood being lost. On June 1st, at about noon, two pints of blood were lost, and on June 2d there were several minor attacks, in which about one pint was lost. On June 3d, twelve ounces were lost. The spleen was now found to be perceptibly enlarged. From 10 A. M., June 6th, to 11 A. M., June 7th, seven ounces of blood were lost. The spleen was yet enlarged. From 10 A. M., June 10th, slight hemoptysis continued. At this stage, Gerhardt made the diagnosis of intermittent hemoptysis and ordered quinine, fifteen grains, morning and evening, until June 20th, during which time no blood appeared in the expectoration. On June 20th, the spleen was no longer enlarged.

The second case was that of a man who had already had bloody expectoration. Creasote was administered, improving the general condition. From July 14th to 17th, at intervals of eighteen hours, the patient spat blood. The spleen was somewhat enlarged. Upon the administration of quinine the expectoration of blood ceased, and on July 26th, the spleen was no longer enlarged. The sputum contained bacilli. From the regularity of interval of the recurring attack, from the enlargement of the spleen, and from the efficacy of quinine, the author diagnosticated a masked intermittent. He explains the occurrence of the intermittent hemoptysis by the fact that in cases of masked intermittent the concentration of the malarial poison is not sufficient to cause a typical attack of fever, but that the poison operates upon some point, the normal resistance of which is diminished. The progress of the disease is attended with erosion of a vessel, which ruptures from the increased blood pressure caused by the influence of the malarial poison.—*Wiener medizin. Presse*, No. 42, 1888.

Phenic Acid in Skin Diseases.—The internal use of phenic acid in pruriginous affections is highly thought of by Dr. Augagneur, and is especially efficient in eczema and psoriasis. He gives it in the following combination:

℞.—Phenic acid crystals . . . gr. vij.
Syr. aurantii . . . . ℥vj.
M. Glycerine q. s. to dissolve acid.

The dose for an adult is two teaspoonfuls daily.—*Revue Générale de Clinique et de Therapeutique.*

Balsam of Peru for Idiopathic Leukoplaques and other Disorders of the Buccal Mucous Membrane.—Many remedies, both medical and surgical, have been used in the treatment of the so-called idiopathic leukoplaques or psoriasis of the buccal cavity. The use of the galvano- and thermo-cauteries and the sharp curette are rational enough, but the condition is apt to recur. Medicinally, nitrate of silver has been applied locally, and alkaline mouth washes have been used. Corrosive sublimate is efficient only in cases of specific origin. Chromic acid, tincture of iodine, iodoform-ether, and iodoform-alcohol are unreliable. Lactic acid is an excellent remedy, but it has the disadvantage of injuring the teeth, no matter

how carefully applied. The same objection applies to salicylate of sodium. Recently, papayotin, in five to ten per cent. solutions, has been recommended; but the preparation is often unreliable, decomposes readily, is expensive, and only exercises a pain-relieving influence and forms a covering for the denuded surfaces, not influencing the disease process. After numerous trials, ROSENBERG (*Therapeutische Monatshefte*, October, 1888) recommends the balsam of Peru applied with a brush. Two points should be borne in mind: the remedy must be used for a long period; and the preparation must be a good one. The application is followed by slight burning and increased salivary secretion, and is made one to three times daily by the patient himself. It is also thought that in mercurial stomatitis this method of treatment not only diminishes the pain but also the salivation, and that it shortens the duration of the disease. There seems to be no reason why the utility of balsam of Peru should be confined to affections of the mucous membrane of the mouth. The remedy should also prove useful in disorders of other mucous membranes, particularly of those of the urethra, the rectum, and the female genito-urinary tract. The author concludes as follows:

1. Balsam of Peru has an analgesic influence upon painful conditions of the buccal mucous membrane dependent on tissue changes.

2. It hastens granulation and repair of lost tissue.

3. It causes the disappearance of epithelial opacities, in case of old leukoplaques, however, often only after protracted treatment.

When to take Medicines.—Alkaline medicaments should be given before meals. Iodine and its preparations should be given during fasting, when they become rapidly absorbed in their own forms and do not undergo the changes caused by the presence in the stomach of food acids and starchy materials. Acids are best taken midway between meals, when they become rapidly diffused. If, however, it is desired to limit the production of gastric juice, they are given just preceding a meal. Arsenic, copper, and like irritants come after meals, likewise, cod-liver oil, phosphates, and malt preparations. —*Journal de Méd. de Paris.*

Chloroform Water as a Hæmostatic.—ULBRICH (*Präg. med. Wochenschrift*, No. 32) recommends chloroform water (1 : 10 well shaken together) as an effective hæmostatic in bleeding from the gums after the extraction of teeth. Chloroform water is not only a hæmostatic, but also an antiseptic and anodyne in painful and mycotic affections of the mouth. It has also been used for the severe stomach pains of neurasthenia.

℞.—Aquæ chloroformi . . . 100 parts.
Aquæ aurantii corticis,
Aquæ menthæ piper. . āā 50 parts.—M.

S.—Take tablespoonful, three times a day.—*Deutsche med. Wochenschrift*, September 6, 1888.

The Results of the Surgical Treatment of Diffuse Purulent Peritonitis and of Peritoneal Sepsis.—WITZELL, of Bonn, before the Surgical Section of the Sixty-first Congress of Naturalists, discussed this subject:

Though the peritoneum, under certain circumstances, bears well the presence of extremely irritating, infectious matters (as in the reposition of the injured and soiled intestine), although surgical operations for diffuse peritonitis are successful, sometimes in spite of doubtful cleansing of the abdominal cavity, still the method of operation in peritonitis must be improved in the direction of thoroughly, and with safety, cleansing and disinfecting the cavity. The methods hitherto used (removing the intestines or filling the abdominal cavity with antiseptic fluid, evacuated by turning the patient on his side) expose the patient to severe shock without sufficient warrant of entire success. As a result of numerous experiments with animals, Witzel recommends making numerous perforations in the peritoneum, the introduction of long drainage tubes in various directions and passing through these a warm solution of common salt. That this method is also capable of removing the products of inflammation was demonstrated by three cases thus treated—demonstrated at the autopsy, it is true, for, on account of the severity and duration of the existing condition, the operation was powerless to prevent death. It is important to distinguish between peritoneal sepsis and diffuse peritonitis. In the former an enormous development of septic irritant matter occurs in a cavity, the absorbing power of which remains unchanged; the septic products are not prevented entering the system through the large lymph spaces. In purulent peritonitis, however, there exists an inflammatory condition of the serosa, and the lymph spaces are early occluded. Thus, in peritoneal sepsis, therapeutics is hopeless. In the transition forms of purulent-putrid peritonitis, the degree of general infection determines the result. Some successes have been had from the surgical treatment of such cases (Krönlein, Mikulicz, etc.); also, without finding and suturing the perforations in the stomach or intestine has a cure been effected by incision and drainage (Lücke). In true purulent peritonitis, not the result of perforation, we have in its progress, so to speak, to do with a more or less simple abscess; for this reason, surgical measures promise much better results. The progress is equally favorable in cases of so-called idiopathic and in true puerperal peritonitis; in metastatic puerperal pyæmia temporary relief, at least, may be secured by evacuation of the large exudate. In the discussion, Krönlein reported that he had operated in six cases of diffuse purulent-putrid peritonitis, with success in but one. He prefers the median incision and disinfection from this point to multiple incisions.—*Berlin. klin. Wochenschr.*, Oct. 15, 1888.

Pastels for the Sick-room.—

℞.—Iodine . . . . . 1 part.
Acidi salicylic. . . . . 2 parts.
Paraffine . . . . . q. s.

These ingredients are mixed, a wick supplied, and then burned at a candle. The salicylic acid is changed into phenic, and the iodine set free in its own state.—*Revue de Thérapeutique.*

Acne.—For two years LASSAR has successfully treated acne by the application of an ointment of naphthol, 10 in 100. This is washed off in an hour and reapplied on the second day, when desquamation occurs without any cicatrix remaining. In more obstinate cases a camphor salve is also added.—*Lyons Médicale.*

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, NOVEMBER 17, 1888.

MENINGITIS IN TYPHOID FEVER.

THE more closely the clinical history of typhoid fever is studied, the more important do its complications appear. Betke, from an analysis of a series of 1420 cases in the hospital at Basle, found only 672 free from complications, whereas 748, or 52 per cent., showed complications of a more or less marked character. It is obvious that no hard and fast line can be drawn between the complications of an acute febrile disease and the mere intensification of certain processes with corresponding prominence of local symptoms. We agree with those who place intestinal hemorrhage, perforation, and peritonitis among the complications. To the same category it seems proper to refer such results of parenchymatous degeneration as atrophy of muscles, abscess of muscles, parotitis, and nephritis. The category to which hypostasis, œdema, thrombosis, embolism, and infarction, with their results, should be referred is a matter of opinion. Whether these processes should be regarded as belonging to the primary disease or as complications of it, would depend, to a great extent, upon the prominence of the morbid phenomena to which they give rise. On the other hand, pneumonia, erysipelas, phlegmonous abscesses, diphtheria, and other septic processes are obvious complications, concerning the relation of which to the original disease there can be no question.

Among the less common of this latter group is meningitis, the occurrence of which as a complication has, from time to time, been the subject of much discussion in view of the fact that, while symptoms pointing to its existence are by no means rare in the course of typhoid fever, for a long time its anatomical lesions had been sought for in vain, even in instances in which the symptoms had been during life pronounced. More recently, the occurrence of cases characterized by convulsions, paralysis, hyperæsthesia, opisthotonos, with the discovery upon examination, *post mortem*, of the associated lesions of cerebro-spinal meningitis, has placed this affection indisputably among the complications of typhoid.

FREYHAN (*Deutsche med. Wochenschr.*, August 2, 1888) has recently reported three cases of meningitis occurring as a complication of typhoid, observed in the wards of Dr. Fürbringer, in the Hospital Friedrichshain, in Berlin. These cases occurred in individuals aged nine, twenty, and twenty-six years respectively. They all terminated in recovery; nevertheless, the symptoms were so well marked as to leave no doubt of the propriety of the diagnosis. As the result of the study of these cases and of the literature of the subject, which is limited, Freyhan makes some general statements, which are of value as illustrating the clinical history of this complication and as shedding light upon the differential diagnosis between mere functional disturbances of the nervous system and meningitis.

The time of the occurrence of meningitis as a complication is in the second period of typhoid fever, occasionally not until the convalescence. Prodromes are, as a rule, absent; occasionally the outbreak is preceded by headache and restlessness. The earlier symptoms are severe headache and vomiting. Headache occurring after the end of the second week thus becomes significant. It is often diffuse, most intense in the occipital region, sometimes localized in the brow, continuous with occasional intensification. It is associated with pains in the neck and back and tenderness upon pressure along the spine; there are also muscular stiffness and opisthotonos. Intellectual disturbances range from mere confusion to furious delirium or deep coma. Most significant symptoms are paresis and paralysis. They vary in intensity from mere weakness of a leg or arm difficult to recognize, to complete hemiplegia. Partial palsies of the facial or oculo-motor nerves and paralysis of the tongue likewise occur. Especially characteristic is the rapid development of optic neuritis. Paralysis of spinal nerves is less common, but hyperæsthesia

and increased cutaneous and tendon reflexes are especially important. The fever is of an irregular remittent type.

The differential diagnosis between meningitis as a complication and mere intensification of the symptoms of meningeal irritation in uncomplicated typhoid will rest chiefly upon the association of a number of symptoms pointing to meningitis, and especially upon the simultaneous occurrence of hyperæsthesia, intensification of the reflexes, and positive motor disturbances. The distinction between meningitis of the ordinary form and tubercular meningitis is not always practicable. The differential diagnosis between meningitis and other forms of nervous disease occurring as complications of typhoid fever, such as hemiplegia, paraplegia and monoplegia due to central local lesions, and peripheral neuritis, rests upon well-recognized data. These affections almost invariably occur during the period of convalescence, and are not accompanied by fever or marked cerebral symptoms.

As regards the etiology of meningitis as a complication of typhoid fever, two views may be advanced: first, the doctrine of a localization of the typhoid infection upon the meninges, and, second, that of a mixed infection. Freyhan inclines to the former of these views. In the present state of knowledge this question cannot be decided; for our own part, we believe it more in accordance with the natural history of typhoid fever and cerebro-spinal fever to explain their association on the principle of mixed or independent infection.

THERE has been an unusual, and almost epidemic, prevalence of typhoid fever in the eastern or French-Canadian quarter of Montreal. Nearly one-fourth of the beds at the Hotel Dieu and other hospitals are now occupied by cases of fever. The Board of Health, having entered upon a thorough investigation of the epidemic, early discovered that the law requiring physicians to report the contagious cases, including typhoid fever, occurring in their practice, was not heeded by the fraternity of the French quarter. Prosecution of the alleged delinquents was ordered and several were brought into court under arrest. The judge declined to try the cases, however, holding that the health officer had full jurisdiction in the question of the non-reporting of contagious diseases. Under a discreet administration of his powers, by that officer, Dr. Louis Laberge, it is probable that the important duty of a timely notification of diseases tending to become epidemic will be accepted by the physicians of that frequently afflicted city. The interests of the public health call for it, not only, but it is also greatly to the advantage of the medical profession that the onset and course of those diseases shall be fully known. An amicable understanding between the health authorities and the profession in this matter is a consummation greatly to be desired.

CREMATORIES for destruction of garbage and dead animals are not uncommon in our western cities, but the only one we know of in the Atlantic line of States is the one recently built at Coney Island, New York, for the Board of Health of the town of Gravesend, which town has an enormous summer population, and an enormous amount of hotel-waste. The furnace was accepted, after trial in the presence of experts. It is built of brick, and is twenty feet long, eight feet high, and five feet wide. It will destroy four or five tons of wet hotel garbage and a number of dead animals in about an hour. It does its work without odor, except during the process of charging.

A CHICAGO Associated Press dispatch announces the resignation of Dr. N. S. Davis, as editor of the *Journal of the American Medical Association*, to take effect on January 1st next, and that the Trustees of the *Journal* have elected Surgeon-General John B. Hamilton, of the U. S. Marine-Hospital Service, to fill the position thus vacated.

DR. JOSEPH O'DWYER, the originator of intubation of the larynx, has been appointed Professor of Diseases of Children in the New York Post-Graduate Medical School and Hospital.

DR. R. J. HALL has been appointed to fill the Chair of Anatomy, at the College of Physicians and Surgeons, New York, made vacant by the death of Dr. Sabine. Dr. Charles McBurney has been made Adjunct Lecturer on Surgery.

THE book of Sir Morell Mackenzie, which is said to have reached the enormous sale of 100,000 copies in two weeks, it is stated, is approved by the Empress-Queen Frederick, who has sent him an autograph letter expressing her complete approval of the manner in which he has performed his difficult task, and confirming some of his statements by her own independent knowledge.

The Third Congress of Russian Physicians will be held at St. Petersburg in 1889; an exhibition, embracing the various departments of medicine, will be held in connection therewith.

A new institute for the practical study of sanitary science has been organized at Rome, being the tenth school of this kind to be undertaken in Europe. Original research in sanitary subjects will receive governmental aid through the Italian National Board of Public Health. The curriculum promises to be very thorough and the school will have authority to grant a diploma to those who successfully pursue a full course of study. The institute will be under the direction of the eminent Dr. Paglioni, now the Professor of Hygiene at the University of Turin, who will also occupy the chair of sanitary engineering.

A prize of five thousand roubles is offered in Russia for the best research on the development of toxic elements in uncooked salt fish, to be handed in to the Minister of Interior by January 1, 1893. The scheme to be filled is as follows:

1. To define, by exact experimentation, the physical and chemical nature of the poison.
2. To study, on animals, its effect on the circulatory, digestive, and nervous systems.
3. To determine its rapidity of absorption.
4. To explain the signs by which affected fish may be distinguished from non-affected.
5. To describe means which will prevent the development of poison in fish.
6. To indicate the antagonists to the toxic elements and the medical measures to be employed in cases of persons poisoned by them.

Miss Florence Nightingale is said, by an English publication, to be a confirmed invalid from a spinal disease incurred through over-devotion to the cause of nursing. She went home sick from the Crimea, and her health was never thereafter thoroughly reëstablished. She is now approaching her seventieth year, and is destined to pass the evening of her days as an inmate, and its most favored inmate, of St. Thomas's Hospital, London. It was at that institution, in 1858, was established the Nightingale Fund of £50,000, in perpetual commemoration of the heroic labors of that lady in the Crimean hospitals.

REVIEWS.

Hygiene of the Nursery. By Louis Starr, M.D., Clinical Professor of the Diseases of Children in the Hospital of the University of Pennsylvania, etc. 8vo. pp. 202. Philadelphia: P. Blakiston, Son & Co., 1888.

This book contains much that will be of value to young mothers, for whose guidance it has been written. The chapter on dietetics is full and explicit, as are also the directions as to the clothing and the ventilation and character of the nursery. The term "scarlatinal nephritis" is perhaps somewhat too technical for the lay reader, and the description of the lingual papillæ is unnecessarily accurate.

We do not think that the majority of the profession will agree with the author in his statement that hand-fed babies are stronger and enjoy better health than those nourished at the breast, not only because of the practical difficulties of good hand feeding, but also because the tendency toward such a course is already so unfortunately common among women that the profession should not only encourage maternal care, but, of all things, refrain from making such statements in books prepared for the popular direction of the laity.

In the chapter on disinfectants we are surprised to find copperas, sulphate of zinc, and carbolic acid are the disinfectants recommended. Not only are these not the best disinfectants, but it is also a fact that the poisonous properties of corrosive sublimate cannot be the explanation for its non-appearance on the list since carbolic acid is far more deadly. The table of the eruptive fevers as to their date of incubation, etc., is well condensed, but of doubtful utility.

The book, as a whole, is a safe and reliable guide, pleasantly written and presented in attractive form, but scarcely adapted to the perusal of "my little patients, some of whom, in the rapid passing of time, may soon assume parental duties," to whom "this volume is affectionately dedicated."

SOCIETY PROCEEDINGS.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, October 22, 1888.

The Vice-President, Charles K. Mills, M.D., in the Chair.

Dr. William Osler presented a

NOTE ON PACHYMENINGITIS HEMORRHAGICA.

There are several points of interest in this condition:

First. Is it in any sense of the term an inflammatory process? Practically, we see one of three conditions in these cases:

a. Subdural vascular membranes, often of extreme delicacy.

b. Simple subdural hemorrhage.

c. Combination of the two—vascular membrane and blood-clot.

In two specimens which I showed last year at the Pathological Society, I remarked on the absence of any of the features to which we could apply the term inflammatory.

Dr. Joseph Wiglesworth, in the January number of the *Journal of Mental Science* for this year, takes the same ground. Apart from injuries, dura-arachnitis is rare. I have seen two instances in the specific fevers. In both there was delicate fibrinous exudate between the dura and the arachnoid.

Second: Which is antecedent, vascular membrane or hemorrhage?

It is usually stated that the hemorrhage occurs first, and from the blood-clot, when organized, the vascular sheet arises. This may be the case, and the fact that subdural hemorrhage is often found alone—in fifteen out of forty-two cases in Wiglesworth's series—lends weight to this view. On the other hand, the vascular membrane may exist without a trace of past hemorrhage; neither staining nor melanin grains, simply a fibrous sheet, varying in thickness and permeated with large vessels. The specimen here shown illustrates this condition: It was removed from a man, aged fifty-six, who died of aneurism. The skull cap was unusually thick and dense and extremely vascular. The meningeal arteries ran in deep grooves through the bone. There were many points of vascular union between the inner table of the skull and the dura. In spite of this, the calvaria was removed without much difficulty. The inner surface of the dura was everywhere covered with a fibrous, highly vascular membrane. Toward the vault it was from half a line to a line and one-half in thickness. Toward the base it was extremely thin. It was chiefly made up of large veins forming in places beautiful arborescent tufts. On section, where the membrane was thickest, the veins bled freely, but there was no trace of clot. Microscopically, the membrane was composed of bundles of connective tissue forming a supporting framework for the numerous vessels. At one small area alone, in the middle fossa on the left side, there was a brownish-red staining on the surface of the vascular membrane.

In the two specimens which I studied last winter the identical condition existed, though in neither was the blood-supply abundant, nor the vascular membrane thickened.

Third. Whence the hemorrhage, dural or pial?

I have always thought the former, but I see that Wiglesworth, in referring to the atrophy of the convolutions as a possible cause for hemorrhage, speaks thus: "The pia mater over a variable area may be so intensely congested as actually to resemble an ecchymosis. . . . It is manifest that the conditions may be highly favorable to actual rupture, and I doubt not that this frequently occurs."

Certainly in the instances I have seen the subdural membranes were intimately associated with the dural vessels, and it seems more probable (and is, I believe, generally acknowledged) that from these the hemorrhage always proceeds.

Fourth. The explanation of the occurrence of this singular structure is by no means clear. The cases are commonly met with in asylums. In general hospitals years may pass without seeing an instance. During eight years in the post-mortem room of the General Hospital of Montreal, no instance occurred. The first specimen which I saw, after having been for fourteen years interested in morbid anatomy, was demonstrated by Virchow, in 1884, at the Pathological Institute. At the Philadelphia Hospital cases are by no means uncommon. Within the past two or three months there have been four specimens found, usually in the bodies of persons from the insane department, but in the three instances to which I have referred, the patients came from the medical wards, and had not shown any mental symptoms.

One reason urged why the subdural hemorrhage is much more common in the insane, is the atrophy of the convolutions so constantly associated with this condition. But there must be something more than this, for if atrophy alone is the chief factor, we certainly would meet with it in phthisis and in other cachectic conditions in which the cerebral wasting is quite as common as in general paresis.

The frequency of this condition in asylum work may be gathered from the fact that Wiglesworth's paper is based upon forty-two specimens which occurred in a series of four hundred unselected post-mortem examinations in which the persons died of various forms of insanity. Wiglesworth's contribution is one of the most interesting and valuable that has been made upon the subject.

DR. F. X. DERCUM asked if Dr. Osler accepted the view of Wiglesworth that this condition of the dura is really due to hemorrhage from the pia. He could not understand how a hemorrhage from the pia could become so intimately connected with the dura. He had always regarded the formation as dural.

He asked Dr. Osler if he had any explanation to offer for the formation of these curious cysts in old cases of pachymeningitis.

DR. JAMES HENDRIE LLOYD said that Dr. Osler had stated that in the case reported there was aneurism of the aorta. He would ask if there was any connection between the two conditions. Were there any brain symptoms? The idea has prevailed heretofore that we mostly find this condition in connection with brain troubles such as general paresis, trauma, and chronic alcoholism.

DR. CHARLES K. MILLS said that the paper was interesting in connection with a case of a child nearly three of age, with spasms of a peculiar type, for which he advised trephining and the operation was done by Dr. John B. Roberts at the Philadelphia Polyclinic. After the removal of the skull and dura mater, a membrane was found which was easily separated from the pia-arachnoid. It was a vascular membrane, between the dura mater and the pia-arachnoid. Œdema and great vascularity of the pia mater were also present. After the escape of some serous fluid, the brain apparently receded. The history was that a clock had fallen upon the child's head, and the question was whether or not a slight hemorrhage beneath the dura had not taken place, or whether there might not have been the formation of a membrane without the presence of a clot. It may be that this is the explanation of some of the cases of infantile spasm of peculiar type. This child often had from eight to ten attacks a day. The day after the operation it had two slight attacks, but since then none. He had seen a considerable number of cases of pachymeningitis hemorrhagica at the Philadelphia Hospital, some of which he had reported.

DR. OSLER did not see how the hemorrhage could be connected with the pia as Dr. Wiglesworth thought. The cases he had seen had been in medical wards,

and had presented no indications of cerebral trouble. Atrophy of the convolutions does not always coexist. If atrophy were one of the prime factors in the causation of this condition, we would expect to see it more frequently in phthisis and the chronic cachexias, in which the cerebral wasting is often quite as marked as in general paresis. There is often as much thickening of the pia-arachnoid and gelatinous œdema between the convolutions in phthisis as in general paresis, yet, so far as he knows, subdural hemorrhage has not been described in connection with phthisis except in the inmates of lunatic asylums. The condition is rarely met with in general practice. He had himself twelve years' experience in general autopsical work before he saw a case of pachymeningitis hemorrhagica. The first case that he saw was demonstrated by Virchow in 1884, in the Pathological Institute in Berlin. At the Philadelphia Hospital the condition is met with two or three times a month, usually in patients from the Department for the Insane.

Dr. Osler then presented a communication entitled

injury to the cauda equina and syphiloma of the cord and cauda equina.

which will appear in full in an early issue of The Medical News.

Dr. F. X. Dercum reported

three cases of spinal accessory spasm unsuccessfully treated by excision of the nerve.

The following cases were placed on record, not only to confirm the inutility of the treatment by excision of the nerve, but also to provoke discussion.

Case I.—J. F., aged forty years, married, and a gas-fitter by trade, presented himself at the Nervous Dispensary of the University Hospital, with the following history: He had had rheumatism at various times, one attack of which had kept him in bed nine weeks. Eight months after this last attack he had rheumatism of the muscles of the shoulders, and then began to have turning of the head to one side, which, up to the time of his first examination, had lasted a year. The movements were at first slight and painless, as they still are, but about one month after their first appearance the movements became excessively violent, coming on in paroxysms, and interfering with sleep. His wife described these attacks as irritable convulsions. However, they were limited to the neck, and were unattended by loss of consciousness. These excessively severe paroxysms were, later on, merely occasional. Short, sharp, jerky movements were, however, never absent. The sterno-cleido-mastoid of the right side felt hard and contracted, and was evidently the principal muscle at fault. Indeed, in the movement observed by us it appeared to be the only one involved, though in the severe paroxysms described by the patient the other neck muscles, doubtless, played a part.

Some years ago, Dr. H. C. Wood successfully treated one of these cases by severely cauterizing the back of the neck with the hot iron, and acting upon this hint, the Paquelin cautery and antimonial ointment were freely used in the present case, but without relief of the spasm.

Finally, the patient was admitted to the hospital under the care of Dr. Agnew, who excised a portion of the right spinal accessory nerve. The immediate effect of the operation was a disappearance of the spasm, but as this man had left the hospital, in which he remained twenty-five days, the small, jerking, rotatory movement of the head had again appeared, and he could discover little, if any, difference in the character of the movement. Whether any of the more severe paroxysms recurred he was unable to say, as the patient has not since been under observation.

Case II.—E. L., aged fifty-eight years, married, a watchcase-maker, likewise presented himself at the University clinic two years ago. When apparently in good health, he commenced to have slight twitching in the neck. This twitching had gradually become marked, and, at the time of making the note, was present in the form of a severe clonic spasm. There was no history of rheumatism or syphilis.

Examination showed that the left sterno-cleido-mastoid and trapezius muscles were affected. The spasm was slow and irregularly recurring, and was accompanied by pain in the mastoid and occipital regions. It interfered greatly with sleep, the patient being kept awake two or three hours after lying down. Phonation also seemed to be occasionally interfered with.

The patient refusing to be cauterized, various internal remedies were prescribed, all without avail. Finally, he was admitted to the surgical wards, and likewise operated on by Dr. Agnew, who again removed a portion of the nerve. However, within a few hours after recovering from the effects of the ether, we might say almost immediately, the spasm recurred, and it persisted during the entire stay of the patient in the hospital, some three weeks. I should remark, however, that the spasm appeared to be less severe. Certainly, the movements were of less extent.

It is exceedingly probable that in this and the preceding case, other muscles than those supplied by the spinal accessory nerve were involved, and to this, in part at least, the failure is to be ascribed. However, I determined to give the method another trial in the following case, which seemed more favorable.

Case III.—M. K., female, aged fifty-five, a housekeeper, presented herself at the clinic with constantly recurring slow spasm of the right sterno-cleido-mastoid. This, she said, had existed for two years. At its commencement she had been in her usual good health. Examination showed the right sterno-mastoid to be markedly hypertrophied; further, that the right trapezius also participated, but to a slight extent. It could not be determined that any other muscle was, or had at any time been involved. The patient complained also of occipital pain, and pain along the dorsal spine.

After a rather prolonged trial of the cautery, galvanism, and various drugs, the knife was again appealed to, Dr. Ashhurst this time being the operator. Owing to the apparently limited character of the spasm, he was hopeful of a good result. Dr. Ashhurst performed an extremely thorough excision, removing over four inches of the nerve-trunk, including not only the supply to the sterno-mastoid, but also that to the trapezius. Previous to making the excision, the nerve was thoroughly stretched, very marked force being used. After the operation, and during the entire stay of the patient in the hospital, some twenty-one days, no spasm whatever was observed. However, that an inference as regards cure would have been altogether premature, was proved subsequently. The operation was performed on the 2d of June, and in

the early part of the following August he received a letter from the patient, bitterly complaining that the spasm had returned, saying that it was "very bad again." Of the extent of the recurrence he could not speak with certainty.

Whether in these three cases the recurrence of the spasm was due to the spreading of the affection to other muscles, or to the vicarious nerve-supply of the sterno-mastoid and trapezius, is, he thinks, a matter of minor importance. The belief that these spasms are centric in origin, certainly gathers additional force, and the problem that presents itself is, whether the centres affected are spinal or cerebral, and how this differentiation shall be made. Secondly, whether a more radical surgical treatment should be invoked. These were the points to which he invited discussion.

He purposely refrained from speaking of the morphia treatment of these cases, inasmuch as its application to dispensary patients, who can be so loosely controlled, would be of more than doubtful propriety.

DR. CHARLES K. MILLS added another to the list of unsuccessful cases treated by this operation. On the 6th of this month Dr. Roberts operated on a case which had been sent to Dr. Mills by Dr. Tomlinson, of Wilmington. Dr. Roberts cut down on the spinal accessory nerve of the affected side, and, after identifying the nerve by the faradic current, excised one and a half to two inches. Two weeks after the operation the patient left the hospital, the spasm somewhat improved, but certainly not cured. Dr. Mills had had a number of these cases, and some years ago wrote a paper on the subject. Two of the cases reported recovered largely under the use of the actual cautery.

One of the questions which arise in a consideration of these cases is whether some of them are cortical in origin, due to lesion of the centres for conjugate deviation of the head. He believed that such a view could be entertained, but probably not for such a case as he had referred to, or for such as Dr. Dercum had reported. The persistence of the spasm and its tonic character in most cases are against the supposition of cortical lesion.

DR. DERCUM said that the point is, How are we to differentiate between the spinal and cerebral cases? If conjugate deviation of the eyes occurred with the movements, there would be reason for supposing that there was a cortical lesion. It is, however, rare to have this association. It was not present in his case.

As an indication of the utter hopelessness of operations on the muscles and nerves, it would be well to bear in mind that the movement is one in which a large number of muscles are involved. There are nine muscles, in addition to the sterno-mastoid and trapezius, which are called into play in the act of turning the head and neck, besides two others which act as rotators at times.

DR. J. H. LLOYD reported the following

CASE OF ALCOHOLIC MULTIPLE NEURITIS,

which presented such a characteristic clinical picture of a disease which is not common, that he was led to report it in spite of the fact that the pathological study was incomplete.

Margaret M., aged about thirty-five years, was admitted into the nervous ward of the Philadelphia Hospital in May, 1888. She had a family history of phthisis on the father's side. The patient had never been very strong, but had had no sickness except the ordinary diseases of childhood. She was married at seventeen and had had four children, the last labor occurring five years before admission. She denied syphilis, and presented no lesions of it. She also denied excessive drinking, but an inquiry of her friends revealed the habitual use of alcoholics, sometimes in excess, from her childhood. Four weeks before her admission she awoke one morning to find both her feet paretic. For one week preceding this she had had severe pains in both legs.

On examination the following facts were noticed: The patient was anæmic, very despondent in expression, and rather emaciated. She presented double wrist-drop, more marked on the left side, with wasting of the arm muscles, also more marked on the left side. There was paralysis, quite complete, of the anterior leg muscles on both sides, with consequent foot drop, and wasting. The extensor muscles of the left forearm contracted sluggishly to the faradic and galvanic currents, and showed the serial reactions of degeneration: A. C. C. > C. C. C. The extensors of the feet (muscles especially supplied by the anterior tibial nerves) also reacted sluggishly and showed reactions of degeneration to galvanism. The patellar reflexes were abolished. There were small areas of anæsthesia over the legs and feet. She would believe that a pin was touching the foot when it was touching the leg, and confused the legs. The sensory symptoms were very significant. She suffered from severe burning pain on the soles of the feet, and later in the palms of the hands, causing her to complain. The nerve trunks were acutely sensitive. Pressure over the popliteal and peroneal nerves of the main trunks of the arm was productive of most severe pain. The peroneal nerves especially were sore. The muscles of the leg were extremely sensitive to touch, and those of the calves especially were very tender.

The lungs were normal. The heart presented a faint systolic murmur at the apex; not always heard, and possibly anæmic (?). The pulse was small in volume, very rapid, constantly ranging from 122 to 140, and easily compressible. Her temperature was constantly afebrile, except on two days, when it rose to 101⅘°. For more than half of the time she was under observation (about four weeks) the temperature was rather subnormal, falling as low once as 96⅗°. It was taken in the axilla. The loss of appetite was complete, and the tongue was furred. She slept poorly and her mind wandered. At times she was in a well-marked delusional condition, and was restless always and complaining.

The patient, as she lay in bed, with the wrist-drop and foot-drop, bore a striking resemblance to the picture which Gowers has, in his recent work, of a patient with this disease.

The indications for treatment were especially to relieve pain and sustain the power of a failing heart. It was soon evident that the patient would not respond to treatment. The heart, in particular, never improved in its action. Digitalis was given in the form of tincture, infusion, powder, and poultices of the leaves, but the pulse remained rapid and feeble. A full liquid diet was administered in oft-repeated quantities, but alcohol was not given until toward the last, and then in small doses. It is not necessary to detail all the treatment. Partial relief was obtained from the burning pains in the soles of the feet by lotions of carbolized water; and small cantharidal blisters were used with some benefit over some

of the most painful nerves, as the peroneal. The patient gradually sank from a weak heart and died rather suddenly about the end of the fourth week of her sojourn in the hospital.

He regretted to say that the specimens from this case became decomposed, in some unaccountable way, and were unfit for microscopic study. The brain, cord, and affected nerves, clear to their ramifications in the muscles, were removed, and did not exhibit any marked change on gross examination. It was thought that some parts of the posterior columns were sclerosed; an observation which, he believed, has been made before in some of these cases. The history and observation of the case do not point to an original posterior sclerosis, and it may be a question whether such a change in the cord in a case like the one described could not be secondary to the original nerve lesions. It is also a question whether the obstinately feeble action of the heart in these cases may not be due to changes in the pneumogastric similar to those which occur in the other nerves. The heart was small and the valves normal. The liver was fatty and the kidneys slightly congested and enlarged.

DR. W. T. SHARPLESS reported a case of

EMBOLISM OF THE MIDDLE CEREBRAL ARTERY. LEFT HEMIPLEGIA, ULCERATIVE ENDOCARDITIS, AND LATE GENERAL CONVULSIONS, AND SKIN INFARCTS.

M. D., aged thirty-one years, married (service of Dr. C. K. Mills, at the Philadelphia Hospital), had nothing special in family history. Had been very intemperate for several years, and there was a probable history of syphilis although he denied it. He had acute articular rheumatism last winter which was his only attack. In March last he was suddenly paralyzed on the left side and entered the hospital on April 18th. His condition Aug. 1st, when he came under Dr. Mills's care, was as follows: Left hemiplegia; paralysis marked in the arm, less so in the leg, and not at all in the face; œdema of feet and legs, extending to the knees. He had a very loud double aortic murmur that could be heard as far down the back as the sacrum. Area of cardiac dulness was very much enlarged, as was also that of the liver and spleen. The urine contained albumen in considerable quantity, and later hyaline, granular, and a few epithelial casts were found. In testing his sensations it was found that he could not perceive a light touch as well on the paralyzed side as on the other; but the sense of pain was preserved. Paralyzed muscles responded to the faradic current and showed no reactions of degeneration. His temperature rose to 101° or 102° every evening and regularly fell to normal in the morning.

On Sept. 6th he had two general epileptiform convulsions, and later he had another of a similar character.

On Sept. 15th petechial spots were noticed on his legs and ankles, which increased in size and depth until his death, which occurred Oct. 15th. These spots varied in size from that of a pin's head to a dime and showed no disposition to heal. They were probably skin infarcts.

Autopsy, October 15th: Right middle cerebral artery close to, but just beyond its orgin in the internal carotid, was closed by an evidently old embolus. All branches of the middle cerebral beyond this were thready and cord-like, and could be distinctly seen lying in a bed of yellowish softening, which extended over the island of Reil and the internal surface of all the convolutions which cover in the Sylvian fissure. The cortex of the motor zone, except as just stated, was not softened. A cut through about the middle of the lenticular body revealed softening of the entire breadth of the internal capsule and adjoining lenticular and caudate bodies. This softening was in the middle part of the capsule and did not extend into the anterior and posterior third. Evidently some collateral circulation had been established between cortical branches of the middle and the anterior and posterior cerebral arteries. This was plain in several places where the narrowed and atrophic vessels beyond the embolus again took up their calibre.

The heart was enormously hypertrophied. On the tricuspid and aortic valves were the vegetations of recent ulcerative endocarditis, with a perforation on the septum leading from the left to the right ventricle, just below the aortic ring.

Probably the sequence of events in this case was as follows: First, the abuse of alcohol, and the syphilitic infection; then disease of the aortic valves resulting in their thickening and contraction; next, in March last, the embolus lodging in the middle cerebral artery and producing the hemiplegia, and recently the ulcerative process engrafted on the sclerotic valves.

DR. WILLIAM OSLER said that we are apt to think that the cortical cerebral arteries have not special anastomoses, but an examination of many of these cases of total occlusion, particularly of the middle cerebral artery, shows that a collateral circulation can be established, usually, as in this case, by the enlargement of the anterior cerebral, so that the nutrition is maintained in the central gyri.

NEW YORK NEUROLOGICAL ASSOCIATION.

Stated Meeting, October 2, 1888.

THE PRESIDENT, GEORGE W. JACOBY, M.D., IN THE CHAIR.

DR. B. SACHS presented three cases of

MUSCULAR DYSTROPHIES,

referred to in his paper before the American Neurological Association in Washington. The author referred to the relation between pseudo-muscular hypertrophy and other forms of muscular dystrophies, particularly Erb's form. Erb had stated that the two were identical. Erb's juvenile form consisted in atrophy attacking the upper extremity, particularly the deltoids, the infraspinatus and sometimes the latissimus, the lower extremity being intact. The question was whether pseudo-hypertrophy and Erb's atrophy were distinct or merging types.

Case 1 was twelve and a half years old. The child had suffered from severe fright at ten months. She had never walked well. She had diphtheria when four years old and after this her gait had been worse. When six and a half years old increased size of the legs had been first noticed. The characteristic difficulty in getting up from the floor had been present. There was atrophy commencing in the palmar interossei and affecting the arm and forearm. The thenar and hypothenar eminences had not been involved. There was hypertrophy of the whole lower extremity, but the hypertrophy of the legs had not kept pace with that of the thighs. It was apparent that atrophy of the legs would soon supervene.

The atrophy of the hands had not been present two years ago. The case proved that in the atrophy associated with pseudo-hypertrophy it was not necessary that the shoulder should be first affected as in Erb's form. For the interossei to be attacked first was rare, but only proved that any muscle could be affected by the disease, while in Erb's typical form the hand was exempt to the last.

Case 2 was that of a boy of ten years. There was no history of heredity and no constitutional taint. The patient was a newsboy. He had walked late and had been treated for rickets. He had never been able to run and had been always easily fatigued. The hypertrophy in this case was most marked in the thighs. A peculiarity of the case was the fact that the boy could rise from the floor without climbing upon himself as was customary in the disease and considered by Gowers as a differential test. There was some atrophy of the serratus anticus of the right side. The upper extremities were not affected.

DR. BIRDSALL suggested that the face had a peculiar appearance.

DR. SACHS had not referred to this peculiar puffiness, because, while suggestive, it was not sufficiently characteristic of the Landouzy-Dejerine type. It was possible that it might develop into this appearance.

Case 3 was that of a girl of twelve years. She had walked at nine months. At the age of ten months she had fallen and later had had something the matter with the knee. This was treated with the plaster splint in St. Petersburg and recovered. The circumstance was mentioned because it had been denied that so young a child could be successfully treated with this instrument. At the age of three the child had measles, at four smallpox, at six scarlet fever, and at six and a half typhoid fever. The loss of power in the limbs was not preceded by fever or convulsions. Five months ago it was noticed that motion was impaired in the toes, there was a modified gait, fatigue and difficulty in mounting the stairs. There was no pain. There had been at times a creeping sensation of the skin, and once fibrillar contraction had been noted. The atrophy affected the right leg, thigh, and gluteal region. The electrical reactions were slightly altered, particularly in the tibialis anticus. For four months the knee-jerk had been absent upon both sides, but now it was exaggerated upon the left side, while upon the right side it was still absent. The gait was that of poliomyelitis affecting the anterior group, while the history was one of progressive muscular atrophy of the peroneal form. The gradual onset without convulsions or fever and the progressive character of the affection and the atrophy which was not so profound, distinguished it from atrophies of spinal origin. On the other hand, however, the exaggerated knee-jerk suggested a possible substratum of spinal implication. The case was an anomalous one of a type seldom seen. The author made the diagnosis of peroneal form of progressive muscular atrophy.

DR. BIRDSALL had been interested in the types shown and was not inclined to question the doctor's diagnosis. The last case was, he thought, allied to the progressive muscular atrophy type, rather than to that of an acute poliomyelitis; he thought, however, that there might be grades between the two, that there was no sharp line of demarcation between them. The former presented the characters of a degeneration, while the latter was an acute inflammatory condition which might involve not only the gray matter but extend to the neighboring tracts. The speaker had a case in mind diagnosticated as acute inflammatory poliomyelitis. There was involvement of the muscles of the anterior and posterior aspects of the thigh, slight affection of the anterior tibial group, and exaggerated reflex showing extension to the lateral column. In the speaker's opinion the different varieties of atrophy represented grades rather than distinct pathological entities. The fact that the atrophy in one case had affected an arm and a leg, in one was hemiplegic, and in another paraplegic, should not blind one to the possibility that the pathological processes might be the same. In the present stage of our histological knowledge, he thought that we were not even able to separate cases into those of myopathic and myelopathic origin. The number of cases was meagre and our methods of examination were not calculated to reveal minor degrees of atrophy. In the muscles, nerves, and cord it might be possible to have a gradual destruction and regeneration going on which would escape detection. The value of the electric reaction was equally open to doubt. If fibres degenerated one by one, it was probable that the reaction would remain normal until the number of atrophied fibres had attained a certain grade. The degeneration reaction would be, in any case, interfered with by the normal reaction of the healthy fibres. The question was whether there was great uniformity in these various types or great diversity; he predicted the latter, the types running into each other.

DR. PUTNAM JACOBI suggested that the gluteal muscles were unaffected in the second case presented. This accounted for the lack of the usual difficulty in getting up from the floor.

DR. SACHS accepted this explanation. He had referred to the point because Dr. Gowers had mentioned the symptom as pathognomic.

DR. DANA referred to a case of pseudo-hypertrophy in which the disease had advanced from the calves to the thighs, and thence to the shoulder girdle. There was slight hypertrophy of the forearm, the part said to be unaffected in Erb's form. The fundamental distinction between the symptoms of chronic anterior poliomyelitis and progressive muscular atrophy was the retrogressive or stationary character of the former, and the progressive character of the latter. It was difficult to criticise the diagnosis in Dr. Sachs's last case. He would prefer to postpone his decision, but would suggest that a careful examination of the urine be made for lead. A number of cases of anterior poliomyelitis in children had been recently ascribed to lead.

DR. GRAY would, upon *a priori* reasoning, decide the case as one of chronic anterior poliomyelitis, but that anterior horn myelitis was, as had been suggested, retrogressive. Muscular atrophy could be, he thought, divided into that of spinal and peripheral origin; of the latter, however, we must distinguish between that arising in the muscles and that due to peripheral neuritis. The results of treatment varied. There were cases which, with rest in bed, faradism, and gentle massage, improved, while other cases were unaffected by treatment. He thought that the former were of spinal while the lateral were peripheral, either neural or muscular in origin. Formerly the diagnosis of a central or peripheral origin was deter-

mined by the presence or absence of the reaction of degeneration. Now confusion surrounded this test also. He inquired in regard to opinion upon this point. Was the degeneration reaction present only where the muscles were degenerated?

Dr. Sachs closed the discussion. He was pleased that Dr. Birdsall, who had not heard his paper in Washington, had been in substantial agreement with it. While there was diversity of types there was no anatomical distinction between pseudo-hypertrophy and atrophy. The primary and secondary affections were distinguished by their symptoms. The primary affection occurred early, there was absence of fibrillary contractions and absence of the reaction of degeneration. This group included pseudo-hypertrophy, Erb's type and that of Landouzy and Dejerine.

Dr. Gray begged to refer to a case recorded by Schultze, which had been assumed to be primary, but in which there had been found changes in the cord.

Dr. Sachs explained that the change referred to was independent and unconnected with the muscular symptoms. It was in a part of the cord unconnected with the muscular tract. He suggested that in Dr. Dana's case the atrophy in the arm might have given rise to a fictitious appearance of hypertrophy in the forearm.

Dr. Dana added that the muscles had also the peculiar feel of pseudo-hypertrophy.

Dr. Sachs did not question the diagnosis. He believed that all present had agreed upon the desirability of getting rid of the present classification upon anatomical distribution of the hypertrophy or atrophy. He had retained the term peroneal form for convenience only.

Dr. M. D. Field followed with a paper entitled

OTHÆMATOMA OR INSANE EAR.

The title referred to a shrunken, shrivelled condition preceded by a period of active congestion during which the organ was swollen, hot, and very painful. Between the cartilage and the perichondrium there was effused a sero-sanguinolent fluid, which might become purulent. This was absorbed or rupture occurred with healing and the deformity described. The deformity was not uncommon among the insane. It had been attributed to trophic change. The most general opinion had been that othæmatoma was characteristic only of chronic cases, and usually indicated an incurable condition. The question of a traumatic origin had received some attention. It had been remarked that a Greek statue represented a boxer with this deformity. The author could not recall the reference. It had been said to result in boys from the violence of the game of foot-ball. It had also been observed among soldiers. The author had had under his care the case of a professional pugilist who had presented the deformity in question. Upon directing his attention to it, the man had remarked that it had resulted from a blow upon the head, and that it was common in his profession, that he knew as many as a hundred men similarly injured. Arrangements were made with this man to be present at the meeting. He had been unable to come, but had sent substitutes. Several under-sized, meek-looking professional men, pugilists, here appeared, all presenting the deformity. It could be added, that only one had ever been in an asylum. This one had been in for delirium tremens. It was evident that the insane ear could proceed from traumatism; also that it was more common than was commonly supposed.

Dr. Petersen felt indebted to Dr. Field for the opportunity of examining the cases. He had seen the condition frequently in the insane, and believed it was always due to traumatism. It was more frequent among the insane, probably, on account of the necessity for restraint, also because the insane were apt to injure themselves in many ways. He also believed that the changes in the walls of the vessels in insanity predisposed to the result. Retrograde metamorphosis of the cartilage and perichondrium, like that of senility, was common in general paresis and other varieties of chronic insanity.

Dr. Parsons exhibited a cast of othæmatoma in the recent state, taken some years ago. He had always considered the condition a result of nerve degeneration. The exhibition this evening had, however, demonstrated that it could result from traumatism alone.

Dr. Douglas had seen a considerable number of instances of the insane ear, and thought that it had been due to violence in every instance, either from the attendants, other patients, or the sufferer himself.

Dr. Ingram could corroborate this statement. The insane had the habit of rubbing the ears, which might account for some cases. He could add to Dr. Field's record that of a case of recovery after double othæmatoma during an active maniacal attack. With improvement of the mental condition there was improvement in the ear. Upon recovery there was diminution in the size of the ear but no deformity.

Dr Petersen added that the reference to the Greek statue had been by Fuerstner, *Arch. f. Psych.*, iii.

Dr. Field, in closing the discussion, referred to the case reported by Dr. Hunn, after the patient had been struck with a broom-stick, the hematoma appeared upon the opposite ear. Dr. Hunn cited the case as an instance in which traumatism could not have been the direct cause.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, October 1, 1888.

R. J. Levis, M.D., in the Chair.

REMOVAL OF THE VERMIFORM APPENDIX.

Dr. Nancrede exhibited a vermiform appendix which he removed seventeen days ago. The patient is doing well. This was a hyper-acute case. The child thought that she had injured herself, suddenly experiencing acute pain in the right iliac region. There was vomiting followed by profuse purging. The attack was supposed by the parents to be one of cholera morbus. The vomiting and purging lessened, but from the very inception of the attack there was retraction of the thigh. He was called to see the patient forty-eight hours after the onset. The pulse was then 150. There was moderate pain and tenderness in the region where he supposed the appendix should be, but it afterward was shown not to be exactly in this position. There was no impairment of resonance. The right thigh could not be straightened out, although motion could be made in other directions without causing pain. The temperature was a little over 100°. The next morning at twelve o'clock, the temperature was over 101° and there was, in the right iliac fossa, impairment of resonance on light percussion and tympan-

itic resonance on deep percussion. At three P.M. the temperature was between 102° and 103° and the pulse about 160. He sent the patient to the Jefferson Hospital, where Dr. Barton, and Dr. Conner, of Cincinnati, saw her with him. When the peritoneum was opened purulent peritoneal fluid escaped. There was no limitation of the inflammation toward the median line. He did not find the appendix in its usual position, but after opening with the finger one or two foci of pure pus, the appendix was found pointing directly downward and backward from the outer surface of the cæcum, so that there was much difficulty in applying the ligature. A foreign body was felt which was pushed along the appendix until room was made to ligate between the concretion and colon. A little spot of sloughing was found near the middle of the appendix where the end of the foreign body pressed.

In the discussion on this subject at the recent meeting of the American Surgical Association, it was held by some that the median incision was the preferable one in these cases. In this instance it would have been impossible to reach the appendix through a median incision. It has been advised that the whole wound be left open for drainage. If he had done this, the small intestines would certainly have escaped. There was no limiting membrane. He had seen in consultation one case in which there was secondary hemorrhage after the spontaneous opening of a perityphlitic abscess, the blood probably coming from the deep circumflex iliac. Mr. Hutchinson had, he believed, reported a similar case of severe hemorrhage in which he thought that the blood came from this vessel.

DR. T. G. MORTON said that in the case just reported by Dr. Nancrede the symptoms which demanded operation had existed only a few hours, so that very properly the case should be regarded as belonging to the supra-acute variety of perforative appendicitis. It is somewhat difficult, perhaps, to classify the varieties of inflammation, perforation, and abscess of the appendix, but a division according to the history of the supra-acute, acute, and chronic cases, which he suggested some time since, appears for all practical and clinical purposes quite sufficient. The incision to reach the appendix should be lateral, not median, indeed by the latter it would often be impossible to reach the appendix, and the belly cavity would often needlessly be opened. From numerous dissections he has found that the appendix is normally placed immediately under a point two inches distant from the right anterior superior spinous process, on a line drawn horizontally from the process toward the median line of the body. If the general peritoneal cavity has become involved, it can be washed out as thoroughly by the lateral as by a median section, while by the former more perfect drainage can be secured.

By a lateral incision either vertical or oblique, the appendix can more readily be reached and dealt with, and in the subsequent treatment sloughs, and suppuration can be discharged through the lateral incision; experience has shown that the wound should be left well open except in the supra-acute cases, while such a course could not be adopted in the acute and chronic cases with a median incision.

The presence of the colon, which is more or less firmly held in position at the bottom of the wound, in the cases in which the wound is kept open, prevents any intestinal protrusion during the wound-healing process. The appendix vermiformis almost constantly contains some matter having the appearance of feces; in thirteen consecutive post-mortems recently made at the Pennsylvania Hospital, the appendix in every instance but one contained such matter.

The diagnosis of appendix inflammation, perforation, and abscess ought generally to be readily made, pain in the cæcal region being about the earliest symptom, often paroxysmal, and increased by pressure; nausea and sometimes vomiting; the occurrence of pus is announced by temperature, pulse, and sweatings; perforation of the appendix is often accompanied by the most excruciating pain; general peritonitis by extension of inflammation and symptoms.

Since abscess generally in the ileo-cæcal region is due to appendix disease, we may safely and promptly make an explorative incision, indeed, any uncertainty of diagnosis had best be cleared up by an early section. The danger in all such cases is greatly increased by delay.

DR. MEARS had had two cases in which he operated, one ten years ago, and the other two years ago. In both he made a lateral incision and evacuated the abscesses. In both cases death followed. The post-mortem examination in the first case showed general peritonitis, constriction of the small intestine by a band, and perforation of the appendix, which contained a number of cranberry seeds.

DR. WEIR, who has written ably upon this subject, concludes that the lateral incision is the best. After the occurrence of general peritonitis the median incision is to be preferred to the lateral. There is no doubt as to the value of the lateral incision, but it occurred to him that the median section may be best in certain cases in which it is necessary to deal with complications.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, October 19, 1888.

THE PRESIDENT, WILLIAM GARDNER, M.D., IN THE CHAIR.

DR. BLACKADER read a paper on

FOUR CASES OF PERITONITIS OCCURRING DURING GESTATION.

Case I.—Mrs. R., æt. thirty-two, in the sixth month of her third pregnancy, was suddenly seized with severe abdominal pain. She had always enjoyed good health with the exception of being the subject of constipation. She had taken some purgative medicine, and during the night was obliged to get up to attend to one of her children and got chilled; an hour later severe pains came on. When seen she was suffering severely, her abdomen was slightly distended and tender; temperature 104°; pulse 140, small and weak. Morphia was administered hypodermatically in quarter-grain doses and hot cataplasms applied. Her pulse rapidly failed and it was soon seen that she was suffering from acute general peritonitis. The os was examined and found to be soft, closed, and with prominent neck. There did not appear to be any special contraction of the uterus. By midnight her pulse was scarcely perceptible, but afterward improved. The pains now assumed a bearing-down character, and twenty minutes after a dead fœtus was born. Vomiting of grumous matter set

in and she expired in a very short time. No post-mortem was allowed.

Case II.—Mrs. S., æt. thirty-three, in her eighth pregnancy, had always enjoyed good health. Toward the end of the eighth month of pregnancy caught cold and suffered an attack of bronchitis causing her to be confined to her bed for a week; while recovering from this, acute parenchymatous glossitis set in, the pyrexia lasting three days. On the fourth day the swelling had almost subsided. The same afternoon Dr. B. was sent for in haste and found patient with pinched features, feeble, quick pulse, and a temperature of 103°. There was considerable tenderness over the lower part of the left abdomen, especially in left groin; there was no distention of the abdomen. Morphia was given hypodermatically. Next day she was somewhat improved and only suffered pain whilst turning to either side. In the evening a live child was born with scarcely any pain and very rapidly. Immediately after the birth her pulse was 120, and temperature 101°. Dr. George Ross was called in consultation and also Dr. Gardner. Two days after her child was born her pulse began to fail rapidly and her condition seemed most serious. Vomiting and hiccough set in, and there was great distention of the abdomen. Arrangements were made for abdominal section, but death took place during the administration of the ether and before the operation had been commenced.

Case III.—Mrs. C., æt. twenty-eight. Dr. B. first saw her June 23, 1885, in the sixth month of her fourth pregnancy, and naturally of a very strong constitution. She was complaining of severe abdominal pain with diarrhœa, which she attributed to getting her feet wet a day or two previously. Pulse was rapid, but her temperature was normal. An anodyne was prescribed, and she was not seen again for forty-eight hours, when she had a rapid pulse (108) and a temperature of 99.8° F.; she complained of pain and tenderness in the abdomen, and was confined to her bed. Next morning she was much worse. She had an anxious expression of countenance, considerable lividity of face and lips, with a temperature of 102.5°, and pulse of 120; tenderness was marked in the right iliac region and extended across the median line; there was slight abdominal distention. That evening she was comfortable. At 2 P. M. labor pains came on and the child was born before Dr. Blackader could reach the patient. There had not been much hemorrhage, but the mother was very pale, her lips were livid and her pulse feeble; the placenta was retained. After waiting a short time the placenta was delivered by passing the hand into the uterus; there was no hemorrhage. Vomiting set in shortly, and she died the same evening at six o'clock. No post-mortem examination was allowed.

Case IV.—Mrs. B., æt. twenty-four, consulted Dr. B. about the end of October, 1887, for frequent and painful micturition. She had been married in August. The symptoms did not yield to remedies, and a vaginal examination was made and the uterus was found anteverted and decidedly enlarged. Absolute rest in bed was insisted on. By the end of December she was up and about and apparently as well as ever. She was not seen again until the middle of February. She then complained of pain in the right iliac fossa and back; there was also a good deal of nausea, a thickly furred tongue and constipation. Pulse and temperature normal; no tenderness on pressure was detected. Salines were administered (March 2d) with partial success. A fortnight later the pain became suddenly much aggravated, apparently after eating heartily; there were much tenderness over the cæcum and slight distention of abdomen. Temperature 102°, pulse 100. Slight nausea but no vomiting. The patient was anxious, restless. On the evening of the 5th Dr. Brune was called in and agreed that there was a local peritonitis. A few days later the symptoms became so serious that the question of abdominal section was discussed. There were considerable distention and great tenderness of the abdomen, especially in the right iliac region, and vomiting was frequent. Pulse weak, and 120–130; temperature 101°. Morphia was given hypodermatically and the symptoms gradually subsided. On the 12th the right parotid gland became inflamed, and then the left gland was likewise affected, but both subsided without suppuration. On the 14th of May the patient was safely delivered of a healthy child, labor was in every respect normal and convalescence was uninterrupted. Since her confinement there have been two slight attacks of abdominal tenderness in the right side, with slight pyrexia—but now the patient is quite well.

Dr. Blackader said that there was no reason why peritonitis should not occur during gestation, while there are reasons why it might even be more frequent at that time. A very small number of cases are recorded in medical literature, and he thought it must be of rare occurrence. No reference is made of peritonitis during gestation in any of the works on obstetrics, and very few cases are reported in medical journals. Dr. Blackader could find only four. Dr. Gow reports a case in the *Edinburgh Medical Journal* for January, 1888, which was given by the reader of the paper in full. The patient died, and no cause for the peritonitis could be found. Dr. Gow refers to one of Sir James Simpson's cases in which also no local cause could be found at the post-mortem. Dr. Matthews Duncan reports two cases of a similar kind, in both of which death took place, and no local cause of the peritonitis could be discovered. One of the patients suffered from enteritis. In not one of the cases cited by Dr. Blackader could the exciting cause of the peritonitis be discovered.

The diagnosis of the cases will lie between peritonitis, concealed hemorrhage, rupture of the uterus, and perhaps rheumatism of the uterus. Dr. Blackader said that he much regretted being unable to procure a post-mortem in his fatal cases, but that he had not the slightest doubt that his diagnosis of peritonitis was correct.

Dr. J. C. Cameron said that he did not see why pregnant women should not have peritonitis; their condition would rather predispose to it than otherwise. The great defect in the paper was the fact that no autopsies were held, and whether the peritonitis was idiopathic or not could only be determined by a post-mortem examination. He himself was rather sceptical as to the occurrence of idiopathic peritonitis. Peritonitis may, in these cases, have been caused by a perforating appendicitis, ruptured cyst or tube, abscess, etc.

Dr. Harvey, of Calcutta, related a case in which postpartum hemorrhage was caused by adhesions of the uterus to the parietal peritoneum, this prevented contraction of the uterus. He saw no reason why pregnant women should be exempt from peritonitis, as the same causes which produce it in the non-pregnant would be found in the pregnant.

DR. T. JOHNSON ALLOWAY said that the pregnant uterus could stand a great deal of injury; he himself thought pregnant women were not so liable to peritonitis as other people. In the cases reported by Dr. Blackader he was of the opinion that if a post-mortem examination had been held a ruptured tube would have been found, or remains of old peritonitis may have lighted up pelvic inflammation.

NEWS ITEMS.

Prevention of the Spread of Smallpox among the Indians in New York and Pennsylvania.—Official information having recently been received by the Secretary of the State Board of Health of Pennsylvania, from the Secretary of the New York State Board, of the existence of smallpox among the Indians of the Catarangus and Allegheny reservations in that State, he at once telegraphed instructions to Dr. J. L. Stewart, of Erie, Medical Inspector to the Board for the lake district, to visit the Cornplanter tribe in Warren County, Pennsylvania, the members of which are in constant communication with those of the New York reservations, and take the necessary means for their protection. The instructions were carried out with commendable promptness. The entire tribe was vaccinated and the chief, Marsh Pierce, promised to forbid his people from crossing the border until the disease had disappeared. He rendered every assistance to the vaccine physician, and extended the thanks of himself and his people to the State Board for its timely action in their behalf.

Dressed Poultry.—The Legislature of Massachusetts, according to *The Prophylactic*, has enacted the following: 1. No poultry, except it be alive, shall be sold or exposed for sale until it has been properly dressed by the removal of the crop and entrails, when containing food. 2. Whoever knowingly sells or exposes for sale poultry contrary to provisions of section 1 of this act shall be punished by a fine of not less than five nor more than fifty dollars for each offence. The Boards of Health in the several cities and towns shall cause the provisions of this act to be enforced in their respective cities.—*Journal of Amer. Med. Assoc.*, Nov. 10, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 6 TO NOVEMBER 12, 1888.

By direction of the President, BASIL NORRIS, *Lieutenant-Colonel and Surgeon* (U. S. Army), and HENRY R. TILTON, *Major and Surgeon* (U. S. Army), are detailed as members of the Army Retiring Board appointed to meet at San Francisco, California, by War Department Order dated October 27, 1888, published in Special Orders No. 253, October 30, 1888, from Headquarters of the Army, vice Colonel and Surgeon Elisha J. Bailey and Captain and Assistant Surgeon John J. Cochran, hereby relieved.—Par. 13, *S. O. 261, A. G. O., Washington*, November 8, 1888

By direction of the Secretary of War, JOSEPH C. BAILY, *Lieutenant-Colonel and Assistant Medical Purveyor*, will transfer at once the public funds for which he is now responsible, to Captain and Medical Storekeeper Henry Johnson, who will assume temporary charge of the medical purveying depot in New York City, retaining charge thereof until relieved in person by Lieutenant-Colonel and Surgeon E. P. Vollum, under his assignment as Acting Assistant Medical Purveyor, to whom Captain Johnson will then transfer the public funds.—Par. 1, *S. O. 257, A. G. O., Washington, D. C.*, November 3, 1888.

MCCLELLAN, ELY, *Major and Surgeon.*—Is relieved from duty at Jefferson Barracks, Missouri, and will report for duty at Chicago, Illinois, as attending surgeon and examiner of recruits.—Par. 15, *S. O. 261, A. G. O., Washington*, November 8, 1888.

BARTHOFF, JOHN H., *Major and Surgeon.*—Is relieved from further duty in the Department of Texas, and will report to the commanding officer at Plattsburgh Barracks, New York.—Par. 15, *S. O. 261, A. G. O., Washington*, November 8, 1888.

EWEN, CLARENCE, *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Sidney, Nebraska, to take effect on his present leave of absence, and will report in person to the commanding officer Madison Barracks, New York, for duty at that post.—Par. 2, *S. O. 258, A. G. O., Washington*, November 5, 1888.

APPEL, DANIEL M., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Davis, Texas, and will report in person to the commanding officer Fort Sill, Indian Territory, for duty at that post, reporting by letter to the commanding general Department of the Missouri.—Par. 2, *S. O. 258, A. G. O., Washington*, November 5, 1888.

PRICE, CURTIS E, *Captain and Assistant Surgeon.*—Is granted leave of absence for two months, with permission to apply for an extension of ten days.—Par. 2, *S. O. 257, A. G. O., Washington*, November 3, 1888.

WOOD, MARSHALL W., *Captain and Assistant Surgeon.*—Is granted leave of absence for one month, with permission to apply for an extension of ten days.—Par. 2, *S. O. 257, A. G. O, Washington*, November 3, 1888.

ARTHUR, W. H., *Assistant Surgeon.*—Upon being relieved by Acting Assistant Surgeon J. L. Ord, will proceed to comply with Par. 21, S. O. 250 c. s., Headquarters of the Army.—Par. 5, *S. O. 123, Headquarters Department of Arizona, Los Angeles, California*, November 5, 1888.

By direction of the Secretary of War, ALFRED E. BRADLEY, *First Lieutenant and Assistant Surgeon* (recently appointed), will report in person to the commanding officer David's Island, New York, for duty at that depot, reporting by letter to the superintendent of the recruiting service New York City.—Par. 14, *S. O. 260, A. G. O.*, November 7, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING NOVEMBER 10, 1888.

DICKINSON, D, *Surgeon.*—Ordered to Naval Hospital, Mare Island, California.

BRADLEY, G. P, *Surgeon.*—Detached from Naval Hospital, New York, and ordered to the "Iroquois."

PERSONS, R. C., *Surgeon.*—Detached from Army and Navy Hospital, Hot Springs, Arkansas, and ordered to Naval Hospital, New York.

NORFLECK, ERNEST, *Passed Assistant Surgeon.*—Detached from Naval Hospital, Mare Island, California, and ordered to the "Trenton."

HARRIS, H. N. T., *Assistant Surgeon.*—Detached from Naval Hospital, Mare Island, California, and ordered to the "Kearsarge."

SAYRE, J. S., *Assistant Surgeon.*—Ordered to examination for promotion.

BEYER, H. G., *Passed Assistant Surgeon*—Detached from the "Trenton," and granted six months' leave, with permission to leave the United States.

BRYANT, PATRICK H.—Commissioned Assistant Surgeon, United States Navy.

VON WEDEKIND, LUTHER L.—Commissioned Assistant Surgeon, United States Navy.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, NOVEMBER 24, 1888. NO. 21.

ORIGINAL ARTICLES.

THE OPERATIVE AND MECHANICAL TREATMENT OF SOME JOINT DISEASES AND INJURIES;

With especial reference to the hip-, knee-, and elbow-joints, with illustrative cases; with twelve illustrations.[1]

BY W. R. WHITEHEAD, M.D. (PARIS),
OF DENVER, COLORADO;
EX-PRESIDENT OF THE COLORADO STATE MEDICAL SOCIETY.

I. CONCERNING HIP-JOINT DISEASE, ETC.

I know of no deformity in which the proper use of tenotomy is so much ignored, and in which a more unreasonable use of braces is resorted to, than in hip-joint disease; and this, I believe, results from an inattentive consideration of the pathology of this disease. I have repeatedly met with inflammation of the coxo-femoral articulation in which the first thing thought of was the use of a brace or extension splint, without any regard whatever, apparently, to the contracted condition of the muscles about the hip, or of the flexion of the thigh on the pelvis due to effusion into the joint; or even of the atrocious pain caused by the grating together of eroded joint surfaces. In such cases there has evidently been an attempt to fit a crooked and painful limb to a straight splint without any benefit, and with much suffering to the patient.[2]

The following are some cases that I shall relate as examples of this attempt to fit a crooked limb to a straight instrument.

Fibrous ankylosis of the hip-joint; tenotomy; brisement forcé.—Harry S., aged eleven years, was seen by me with Dr. P. V. Carlin, of Denver, during July, 1887, who saw him for the first time some weeks previously. The boy had limped more or less for two or three years, complained of his left hip, and especially of his knee; had scarlet fever, and some months afterward measles, and complained of pain on the inside of his knee during the scarlet fever. About a week after the subsequent attack of measles, which was in January, 1887, his left leg drew up. Later he was seen repeatedly by a practitioner of Denver, some time during the spring of 1887, who proposed a hip splint, and measured him for it. This doctor applied a weight and pulley to his left leg for three or four weeks. On questioning the parents of the boy, it was discovered that the doctor alluded to, made extension without placing a pillow under the thigh, and making traction "in the line of the deformity;" in other words, extension was made without any heed to the pathological condition; in violation of the anatomical arrangement and physiological action of the muscles about the hip; and necessarily with the pelvis more or less tilted to compensate somewhat for the faulty use of the extension weight. The parents said the leg would hurt him in the night, and often the extension weight would be found on the floor in the morning.

Oct. 6, 1887. The patient having been etherized by Dr. W. W. MacGregor, then of Denver, now of Glenwood Springs, Colorado, I did tenotomy of the rectus femoris and adductor longus muscles; and after sealing hermetically the little wounds of the skin and bandaging the groin, I did *brisement forcé* at the hip, and restored mobility to the joint. Ice-bags and extension weight applied, with the thigh slightly flexed on the pelvis. Saw him each day; there was no notable rise of temperature.

23d He was etherized and forcible movements of the limb were made; ice-bags to the hip and groin, and after a few days the parents were properly instructed how to make motion at the joint, which they did well and with excellent results.

Nov. 13. Applied hip splint; my modification of the Sayre-Shaffer hip brace, made for patient by Tiemann & Co. (see Fig. 1). Subsequently good movement about the joint; brace discarded and patient cured.

Another example of an attempt to fit a crooked limb to a straight splint, has already been published by me in the *Transactions of the Colorado State Medical Society* of last year (1887), and is the case of Katie M., in which *brisement forcé* was done and subsequently successful restoration of the functions of the limb was established and maintained; the same can be said of my case of *brisement forcé* published in the *Medical Record* of December 18, 1886.

In these cases I have referred especially to the utility and desirability of *brisement forcé* at the hip-joint when properly practised and afterward suitably managed by the use of extension weight and ice-

[1] Read before the American Orthopædic Association, at its associate meeting with the Congress of American Physicians and Surgeons, at Washington, 1888.

[2] I wish here to record my protest against immobilization alone in the treatment of hip-joint disease. I have been successful, as have Sayre and others, in curing this disease with motion, indeed with perfect restoration of the function of the limb, and I regard attempts generally to obtain a so-called cure of hip-joint disease by ankylosis, as a retrograde movement in surgery, and as such unworthy of imitation; as entirely opposed to a sound and well-established principle of the treatment of inflamed joints by extension and counter-extension rightly applied. To impart motion judiciously to an inflamed joint, as its inflammation subsides, is a most rational act on the part of the surgeon, and the action of a suitably constructed traction brace is to perform this office.

bags to the hip and groin; the neglect of which would make of *brisement forcé* a most formidable undertaking. A most remarkable case of this kind I have yet to relate.

Fibrous ankylosis of the hip-joint from hip-joint disease; tenotomy and brisement forcé during pregnancy. —Miss ——, aged nineteen years, had fibrous ankylosis of the right hip-joint from hip-joint disease, which first developed itself seven years previously. I first saw her December 13, 1887. She was a fine-looking, well-developed girl, except about the right hip and right lower limb, which were atrophied and the limb was shortened. No abscess had ever opened about the hip or groin; the disease was caused by a blow received on the hip; the general health had most of the time been good. There was some soreness occasionally about the hip, which was considerably elevated, with adduction of the thigh, eversion of the foot, and an apparent shortening of three and a half to four inches.

Dec. 19, 1887. Extension weight of nine pounds and elevation of the foot of the bed; thighs flexed on the pelvis with a pillow under them; extension weight did no good, except to relieve the slight soreness about the hip.

26th. I did tenotomy of the rectus femoris and adductor longus muscles, and also *brisement forcé* after thorough etherization by Dr. W. W. MacGregor. The snapping and cracking of the adhesions were distinctly audible at a distance; in fact, the adhesions were most thoroughly broken up, and perfect mobility of the previously ankylosed hip-joint accomplished.

No appreciable prominence of the abdomen was observed after straightening the limb, and neither Dr. MacGregor, myself, nor the woman attendant, her relation or connection, who assisted us, suspected her condition of pregnancy at the time, and everything passed off satisfactorily, even to the subsequent fitting of the brace by the instrument-maker about a month later.

Extension weight with thighs flexed and pillow under them; ice-bags to hip and groin.

28th. Morning temperature 99 5° F., evening temperature 101.3° F. Very sore about the hip. More explicit directions given about the use of the ice-bags; restless, antipyrin as a sedative.

29th Evening temperature 101.2° F.; antipyrin. After this the temperature was at no time above 101°, and gradually, in a week, it became normal.

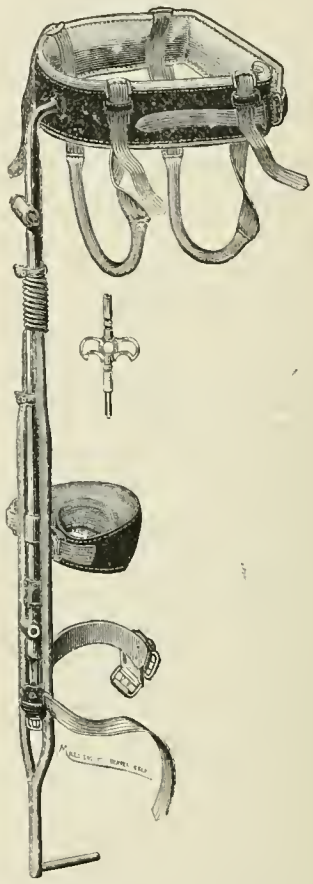
Afterward I practised daily, or caused to be practised, motion of the hip under proper care; and soon she was ready for the hip brace, which was applied by the instrument-maker in my presence about one month after the *brisement forcé*. She was remarkably straight, and the result of the treatment as good as could be wished for. She required a raised cork sole to her shoe of one and a half inches, which was the extent of the shortening.

I saw her repeatedly afterward, and on March 5, 1888, applied fresh plaster and bandages to her limb, and enjoined the use daily of motion of the joint. I lost sight of her for awhile, and my instructions were to notify me when the adhesive plaster and bandages required changing.

About May 15, 1888, I heard that she had just been delivered of a child at full term, much to my surprise, as well as to that of her aunt or relative, who up to the time of the labor pains was ignorant of her condition; besides, this woman, her relative, had during a part of her life been a nurse.

The lordosis of hip disease would, in the first place, and during the early period of pregnancy, have diverted me from the suspicion of pregnancy in a young but deformed girl whom I had no reason

Fig. 1.



to suspect of such a thing. This case, however, is a strong argument in favor of *brisement forcé* under suitable after-treatment; and is brought forward entirely with a view to support this operation as a valuable resource in the treatment of fibrous ankylosis of the hip-joint. Of course, it takes considerable time in such cases to give to the limb that strength and development which rubbing and the use of the limb will gradually produce. This is not understood, or there is an indifference to this fact on the part of those concerned; there has been neglect of motion, and further treatment has been declined, with no appreciation of what was done.

As examples of mechanical treatment of hip-joint disease, without tenotomy, or other operative meas-

ures, I beg to refer to a few cases treated by the extension weight and pulley, followed by the continuance of this at night, and during the day by the use of the brace which I use and which I have already mentioned—that is, my modification of the Sayre-Shaffer hip-joint splint; and which I thus described in my article on hip-joint disease in the *Medical Record* of December 18, 1886 (see Fig. 1 of this traction hip-splint recently made for me by Tiemann & Co., and exhibited to the Orthopædic Association):

"I wish to claim nothing for this splint except that it is a useful combination of other instruments, and I believe will be found to answer a better purpose than some of those in use. This instrument differs from the Shaffer hip-joint extension splint in not having the weight of the body deflected from its straight course along a bent or bayonet-shaped bar of steel to the sole of the foot, and which causes the bar to bend under the weight; and the foot to tend to turn inward. On the contrary, the force exercised by the weight of the body is decomposed, and transmitted solidly downward by two vertical rods of steel to the small horizontal rod under the sole of the shoe; and around this small rod the shoe turns to permit flexion and extension of the foot. The rest of the instrument is arranged for extension and other motions, like Sayre's short splint for the treatment of hip-joint disease. The Shaffer spiral spring is made strong enough to keep the weight of the body from stretching the adhesive straps, which are designed solely for extension at the hip-joint. This spring can be loosened or fastened, and moved up or down for an inch or two or more, by means of the same key that is used to extend or rotate the limb."

But the ball-and-socket joint at the hip makes this rotary movement of the instrument in its shaft unnecessary and adds to its expense. It is made by Tiemann & Co., N. Y.; and by Mr. Brittain, of Denver.

The first example of purely mechanical treatment that I shall cite is that of a consumptive with hip-joint disease, in which there was only improvement of the local hip trouble without any permanent benefit; but which, however satisfactorily establishes the utility of proper treatment in the worse cases:

M. M., æt. thirty years, laborer, was sent to me by Dr. J. C. Blickensderfer, of Denver, with disease of the right hip-joint. Patient came to my office December 6, 1887, on crutches, was very weak, and much emaciated, and in addition to his hip-disease is phthisical. The pain about the hip was excruciating, and he was in great terror of being touched. Allowing him to undress himself at his leisure, and to take a position on a blanket spread on the floor, I astonished him and soon gained his confidence by gently and suddenly seizing his right thigh with my left hand while the same arm supported his left thigh, and lifted him from the floor, making extension while so doing "in the line of the deformity." The poor fellow, who a minute before was terrified out of his wits at an attempt to touch him, at once became quiet and exclaimed "O! that feels so good!" If we owed nothing else to Sayre, it would be a lasting tribute to his memory, the fact alone of his having shown us how, without pain, to handle a patient with hip-joint disease; and this poor suffering patient's exclamation was an eloquent prayer for extension in hip-joint disease.

December 7, 1887. Applied adhesive plaster; and extension weight of nine pounds; raising foot of bed—motion made at regular intervals.

January 25, 1888. Ready for splint; had bed-sore; set him up in bed to take pressure off of sore; ordered splint for him of Tiemann & Co.

February 17. I fitted splint to him, and afterward repeatedly saw him walking about in his splint comfortably.

On June 3, 1887, a little boy, F., with hip-joint disease of left hip, aged three and a half years, of Boston, visiting Denver, was brought to me by its parents. The child was put to bed with extension weight and pulley, and the mother instructed in the use of extension in the proper direction, and being very intelligent she aided me well, so that in less than a week the child was ready for the brace, the contracted tendons not requiring tenotomy. The brace was applied June 7th; but there was some trouble with it, as it frequently needed repairing; and soon the child left for its home; and is now, I believe, under the care of an orthopædic practitioner of Boston.

As another example of the care required to prepare a patient with hip-joint disease for the traction splint or brace, I shall cite the following case sent to me by Dr. Carlin, of Denver:

"A. M., æt. five years, had hip-joint disease of the left hip, distinct, but in an early stage of development. Believing that hip-joint disease in its earliest periods may, sometimes, be cured by simply rest in bed, with an extension weight to the limb, I confined this child to bed. The improvement was so great that after a few weeks I omitted the extension during the day, and relied on extension at night alone. Soon she became lame again and I ordered a splint for her of Tiemann & Co. For some reason, while waiting for the splint to be made, neither during the day nor at night was extension applied, and when the splint came the limb was so contracted that it was necessary again to confine her to bed for two weeks with extension weight, before the soreness had sufficiently left the joint, and the limb had became straight enough to use the brace, which was September 5, 1888.[1]

This preparation for the use of an extension brace is, indeed, generally a very simple matter, but often requires tenotomy, and sometimes *brisement forcé;* and it is the neglect of such preparation that causes failure in the use of the traction brace. There are cases, however, which do well, and relapse because the brace is discarded too soon. There are others also, in which a scrofulous vice causes a return of the disease in the same joint, or its appearance in both joints. I have had two such cases under my

[1] November 9, 1888: It was necessary to do tenotomy of the rectus femoris and adductor layers to prepare the limb properly for the splint, which was done to-day.

care within the last two years, in which, after getting very fair results, and indeed nearly curing the disease in one of them, it has hopelessly returned and in both joints.

As examples of operative treatment without mechanical appliances, I beg to refer to the following cases. The first is one in which it appeared to me quite impossible to use to advantage any apparatus for producing extension.[1]

The case was that of a child of F. R., of Denver, aged fifteen months. May 10, 1888, this male infant was brought to my office; his thigh was very much swollen, flexed on the pelvis, and adducted; the hip elevated and the limb shortened. At first, however, it was extremely difficult to determine that the hip-joint was diseased; but it was easily perceived that a large abscess existed in the upper part of the thigh; the general condition of the child was good, with no discoverable history of its having received a blow or injury to the hip, yet the disease was of recent origin. Dr. J. E. Lowery, of Denver, having given him chloroform, I opened the abscess, made a suitable counter-opening, washed out the abscess cavity with Thiersch's boro-salicylic acid solution, and dressed it with antiseptic materials. The dressings were repeated a few times, always using iodoform liberally: at first packing the wound with iodoform gauze. After a few weeks, the wound seemed to have healed altogether; the treatment being merely palliative.

About eighteen months or two years ago, Mr. T., a prosperous German, a farmer, living near Denver, consulted me about his son, who had a stiff hip, the result of hip-joint disease. I proposed *brisement forcé*, which was declined, and the boy was taken to Europe for treatment.

June 1, 1888. This boy, aged eight years, returned to me, the parents stating that he had been under the care of von Esmarch at Kiel, after seeing me, and that Esmarch had done an operation on the hip, and removed a small piece of bone. An extensive scar over the trochanteric prominence was the site of the distinguished German surgeon's operation, which was an excision or an osteotomy. An abscess had formed on the outer side of the thigh, near the hip some months after the operation, and it was for this abscess that the parents of the boy again consulted me. Dr. Lowery having given chloroform to him, I opened the abscess and, making a counter-opening, washed it out and dressed it as in the preceding case. June 8th and 11th it was redressed; on June 19th it was well, and remained so to the time I left to attend the meeting of this Association.

This treatment suggests to me a plan that I have adopted in the management of abscesses about the hip-joint, and which I believe may obviate the necessity of excision in some cases in which the bone is not extensively diseased. When an abscess forms about the hip, open it, wash it out thoroughly with boro-salicylic acid solution, finally with a very weak mercuric bichloride solution, in a child; then put into the wound a piece of damp gauze well filled with iodoform, and firmly twisted into a cord; this acts as a drain; then seal the wound with antiseptic precautions. I have found one dressing of this kind nearly to heal an abscess, and two quite heal it.

The diagnosis of hip-joint disease may sometimes be quite difficult, in cases of hysteria or neuroses of this joint; but generally the main diagnostic symptom may be stated to be pain in the hip-joint, and confined to it, and manifested on proper manipulation; rheumatism being always a multiarticular affection. In children, however, it is sometimes difficult to decide.

April 30, 1888. Dr. Carlin called me to see a case which simulated hip-joint disease in a peculiarly striking manner; and in which he recognized an abscess about the hip in a boy aged ten years; the thigh was flexed, adducted, and the hip raised. After a careful examination of the hip-joint, and the head of the femur, which I moved freely in all directions, and without pain on firm pressure, I decided that the joint was not diseased, and that the abscess did not communicate with it. Dr. Carlin having given him chloroform, I opened the abscess, which was situated underneath the gluteus medius muscle, and near to the joint, but having no communication with it.

The above case was one easily mistaken for hip-joint disease. There was an abscess near the joint, and only the most careful examination could detect the absence of disease of the joint. But in marked contrast to it is the following case, which exhibits either extreme carelessness or ignorance of the pathology and symptoms of coxo-femoral inflammation.

J. C. D., aged thirty-two years, consulted me October 12, 1887, for what he was told was hip-joint disease. About two months previously, he fell and hurt his hip, and was confined to bed four weeks at a hospital, and was treated by a competent young physician for a contusion about the hip. On questioning this patient, who still complained of some stiffness of the muscles of the hip, he said that at no time since the receipt of his injury was he obliged to hold his thigh flexed on his pelvis to rest easily, and that he could always lie comfortably flat on his back, with both legs extended, without arching the lower part of his spine. In no stage of hip-joint disease can this be done, as we all know. My examination of him, while he was lying on a smooth, hard surface confirmed his statement, as his back and both popliteal spaces touched this surface at the same time, and he was quite comfortable. The femur was freely movable in its hip socket without any pain on pressure, it mattered not in what direction this pressure was made. His case, it seems, had been properly diagnosticated and treated at first,

[1] Bradford's method, with the child fastened on a light horizontal frame, might answer the purpose.

but doubting the correctness of the opinion of his first medical attendant, he sought the opinion of one whom he believed to possess considerable skill and reputation as a surgeon, and who gave him a certificate, of which the following is a copy; the original certificate is in my possession:

"Denver, Sept. 13, 1887.

This is to certify that the bearer, ——, has some of the symptoms of the incipient stage of hip-joint disease, and needs careful and long-continued treatment for it, otherwise he will be a cripple for life."

Signed "——, M.D."

On the opposite side of the paper on which the above was written, is the following supplementary expression by another medical man:

"I am certainly of the above 'opinion.'"

Signed "——, M.D."

The patient told me that this doctor made no examination of him whatever.

Of all injuries to the hip-joint, an old dislocation of this part is possibly the most interesting, especially since the introduction of Bigelow's method of reduction of dislocations at this joint.

July 9, 1888. Dr. Carlin asked me to see J. M., aged thirty years, laborer, or rather miner, and came with him to my office for this purpose. The doctor thought, as I did, that possibly the dislocation might be reduced notwithstanding its long duration. There was an upward and backward dislocation of the right femur of fourteen months' standing; the shortening was two and a half to three inches. Measured by Bryant's ilio-femoral triangle, the upper border of the trochanter major, the patient lying flat on his back, corresponded to a vertical line drawn from the anterior superior spinous process. The head of the femur rested on the dorsum of the ilium above this line.

Some days later at the St. Joseph's Home (Sisters' Hospital), I attempted a reduction under ether; five successive efforts were made in strict conformity with the Boston surgeon's method, and each time as the bone reached the rim of the acetabulum it unavoidably slipped back to its misplaced position. The attempt at reduction was consequently abandoned, and a cutting operation, under strictly aseptic precautions, was proposed, but declined by the patient. It was proposed, and Dr. Carlin readily assenting, to make an extensive straight vertical incision over the trochanter, *liberate the muscles attached to the upper part of the femur by division close to the bone, as I have done in sub-periosteal resection of this joint, scoop out the acetabulum with Volkmann's sharp spoon*, and put up the limb in an immovable plaster-of-Paris bandage, and afterward at the proper time begin passive motion, *with extension*, at the joint. All of which would involve the most careful antiseptic precautions, and subsequent judicious care of the case.[1]

[1] I confess that I had, at the time, no knowledge whatever of any attempt ever having been made to reduce an old dislocation at the hip-joint by cutting down on it, though acquainted with other dislocations reduced in this manner. I simply proposed to carry out what my judgment dictated to me, under aseptic precautions, to be a practical and rational operation, of which I was willing to assume the responsibility. In the discussion which followed the reading of Dr. Ashhurst's paper on "Excision of the Larger Joints," before the American Surgical Association at the Congress of American Physicians and Surgeons, Sir Wm. MacCormac, of London, related his successful experiences in the excision of the hip-joint for old dislocations. After the detachment of the muscles about the femur in my proposed operation, and the reposition of the head of the femur in its acetabular cavity, made ready for it, I cannot, at present, see any advantages of excision over this new operation.

II. Cases of Partial Excision of Knee-joint, to Correct Angular Ankylosis, etc.

In the first of the two cases of partial excision of the knee-joint which I shall report, it was wrongly believed that the patella was joined to the condyles by fibrous adhesions only, and it was proposed to break loose the patella, and after thorough division of the hamstring tendons and adjacent fascia, by open incisions, to straighten the limb by *brisement forcé;* then by the use of a back-splint, extension weight, and graduated movements of the joint subsequently, to restore mobility gradually to the joint.

About two years ago, with the same object in view, I attempted to straighten both contracted knee-joints of a lad about eighteen years of age. Previous attempts to effect this had been unavailingly made, by mechanical means, at an orthopædic establishment, as well as by different physicians, and I thought that by the aid of the subcutaneous section of the hamstring tendons, I should be successful; but I quite failed to straighten either limb, which I thought, erroneously at the time, was due entirely to an imperfect division of the fascia by a subcutaneous operation. Consequently I determined that in future I would not rely on subcutaneous division in such cases, but resort to open section, under aseptic precautions, by which means I could cut the fascia to better advantage, and surely be able to straighten the limb.

In the following case, the patient being etherized, it was found impossible by any properly directed manual force to budge the patella, and an operation was deferred. In the meantime the following paragraph from the last edition of Stephen Smith's work on *Operative Surgery*, p. 840, 1887, met my eye: "If the joint has long been bent at a right angle, not only do the structures above the joint contract, but the condyles lengthen, so as to render it impossible to bring the tibia down to its proper position, even by dividing the resisting tissues, as the hamstring tendons; in such cases the extremities of the condyles have been cut away successfully with antiseptic precautions." This is quoted from Lister. Hence, at my second appointment, I went prepared to exsect a part of the condyles, if required, which

was done, and the limb straightened; and then it was perceived that without such exsection all attempts to straighten such limbs must prove failures; and the reason is this: The growth of the extremities of the femur and tibia necessarily occurs in the direction of their length; and if the joint has been a long time bent, the epiphyses of the bones, in such cases, forming an angle with each other more or less acute, the articular surfaces adapt themselves to each other somewhat like the abutting ends of the rafters of a house. Hence, Lister, as quoted by Stephen Smith, found lengthening of the condyles, in the long-bent position of the knee-joint, to interfere with straightening of the limb, and resorted to partial excision, which I did also successfully in the two cases which I now propose briefly to report.

CASE I. *Ankylosis of knee-joint; partial excision.—November 3, 1887.* Charles B., aged thirteen years; ankylosis of right knee-joint of several years' duration; unsuccessful attempt to dislodge the patella, which was firmly united by bone to the femur. Further attempts were deferred to a cutting operation. Present: Drs. H. A. Lemen and P. V. Carlin, of Denver. Fig. 2 shows appearance of patient before the operation.

FIG. 2.

FIG. 3.

9th. Partial excision of the knee-joint. Open section of the hamstring tendons as a preparatory measure to straightening the leg. It was then discovered that the joint surfaces abutted together in such a manner, that to straighten the leg was quite impossible without a partial excision of the joint; and this was made still more apparent after the joint surfaces were exposed to view. An incision was made on the external side of the joint, as shown at Fig. 3, along and below the external border of the patella, and an incision at right angles connected with this below. The patella was detached from its bony union to the femur, by means of saw, chisel, and mallet; *but the patella was not removed;* Drs. H. A. Lemen and Carlin assisting me. Sufficient bone was removed—which I here exhibit to you—through the external cut to permit the limb to be brought to a straight position, when the knee was dressed with antiseptic precautions and put in a wire splint, with extension weights applied, and ice bags put to the knee. *Care was taken not to divide the external lateral ligaments or any of the ligaments about the joint.* The average temperature for the first week was 99.5° F.

FIG. 4.

24th. Changed dressing and removed drain tubes.

29th. Changed dressing; wound nearly healed.

Dec. 10. Dressed wound, and substituted plaster-of-Paris splint for wire splint.

18th. Removed dressing; cured; continued, however, to wear a splint to support the knee and secure firm ankylosis, which afterward took place.

March 14, 1888. Patient was photographed.

Fig. 4 shows a wood-cut from a photograph of the boy; exhibiting also on the outer side of the leg, opposite the knee-joint, the scars of the incisions; and more posteriorly the scar of the lower drain tube hole.

CASE II. *Ankylosis of knee-joint; partial excision.*—Edward L., æt. eleven; fibrous ankylosis of right knee-joint; joint free from inflammation; patella firmly united to condyles by bony union.

Operation, January 31, 1888. Partial excision of knee-joint.

Fig. 5, a wood-cut, from a photograph taken before the operation, shows the appearance of the knee and right leg at that time; the boy's general condition being excellent.

FIG. 5.

FIG. 6.

Preparatory section of the ham-strings, and popliteal fascia by open incision; assisted by Drs. W. W. MacGregor and J. E. Lowery; the latter gave ether. Operation done as in preceding case, *by an external incision, and the ligaments were respected—that is, were not cut—and the patella was left in place*, and the same kind of after-treatment as in the preceding case was adopted, with the exception, that hydronaphthol as an antiseptic was used exclusively in the dressing. *Extension and ice bags to joint*, as in preceding case. The extension during the first week or two allays pain, by controlling muscular spasm, and, in conjunction with the ice bags, keeps down inflammation, even in those cases in which there is no hope of obtaining motion in the joint subsequently; and, in this way, extension is a valuable aid in the treatment.

February 2. Temperature 100° F.; it subsequently fell to 99°, and was this on an average during the first week.

14th. Changed dressing; inserted a rubber drain tube; some suppuration; knee swollen; the hydronaphthol gauze caused considerable irritation; he said it burnt him immediately it was applied. Discontinued hydronaphthol dressings altogether, and two days afterward returned to my usual dressings of mercuric bichloride and iodoform.

16th. Changed dressings; rubber tube acting well; used dressings of mercuric bichloride and iodoform.

22d. Changed dressing; large ulcerated surface around the drain-tube holes; inflammation exterior to the joint, which is doing well; removed drain tube.

March 5. Changed dressing; ulcerated surface healing rapidly. After this I saw him quite often, and twice curetted the drain-tube holes, which greatly accelerated their healing.

June 11. Drain-tube holes all healed; and after obtaining his photograph, he was discharged cured, and he left a few days afterward for his mountain home in Middle Park, Colorado, wearing a splint to favor firm ankylosis of the knee-joint. Fig. 6 shows a wood-cut of him after the operation.

July 25. Relapse: After leaving Denver he was exposed to a snowstorm in crossing a high range of mountains, and while camping, it snowed on him during the night. He was attacked with a severe cold and inflammation of the knee-joint, and finally, after more than a month of suffering, was taken to Denver, where I saw him again July 25th, in a most pitiable condition—worn, haggard, with knee-joint much swollen and intensely painful, and with a temperature of 103.5° F. Dressed his wound.

27th. Having been removed to the Sisters' Hospital at Denver, Dr. Lowery gave him chloroform, and I opened the joint in several places, and made counter-openings above the knee, from which escaped about half a pint of the most offensive smelling dark-colored pus. The wound was thoroughly irrigated with a mercuric bichloride solution, and injected with an ethereal solution of iodoform, and then a number of iodoform gauze drains, such as I have already described, were introduced, and the wound was sealed with antiseptic precautions.

August 5. Knee dressed as on the 27th of July; *doing splendidly and not a drop of pus;* temperature normal.

21st. Changed dressing; slight suppuration; patient walking about with a crutch.

30th. Dr. Lowery gave him chloroform, and I curetted the sinuses with Volkmann's sharp spoon; new felt splint applied.

Sept. 7. Dressed wounds aided by Dr. Lowery, who was left in charge of the case during my absence in attendance at this Association.[1]

I believe that even after a knee-joint has begun to assume a permanently angular ankylosis, which will eventually lead to a lengthening of the epiphyses in such a manner as to make them meet together like the joined ends of two rafters, as in the two cases just reported, that much may be done to restore the limb to a normal position as the following case will illustrate.

Case of scrofulous disease of the left knee-joint of several years' standing; tenotomy; extension.—February 1, 1888. Dr. John P. Kelly, of Golden, Colo-

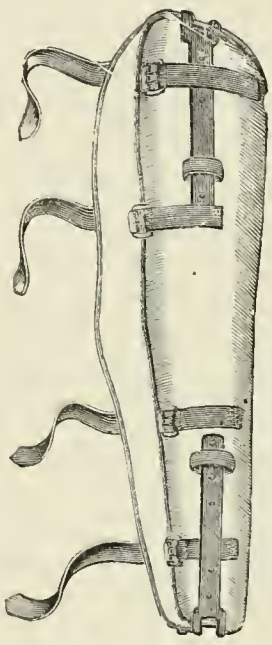
[1] November 9th: His condition is excellent; two small sinuses need curetting; he walks to my office to be treated; limb ankylosed in straight position.

rado, called me to Golden to amputate a cancerous breast, and while there requested me to see a little girl, Jennie B., aged nine years, very much emaciated, and suffering with a painful scrofulous disease of the left knee-joint. At the suggestion of Dr. Kelly she was placed under my care.

Fig. 7 is a wood-cut engraving copied from a photograph of her, and exhibits her appearance

Fig. 7.

Fig. 8.



before treatment. The patella was freely movable, and the joint was not ankylosed. There was a subluxation backward of the tibia, and the characteristic overhanging knee-cap and condyles, as shown in the engraving.

April 4. She was etherized, and Drs. Clough and Lowery, of Denver, assisting me, I divided the ham-string by open incision. After freely dividing the ham-strings and all contracting fascia, I could not entirely straighten the limb owing, as I believe, to the pathological condition mentioned above, already taking place in the joint. After the wounds in the popliteal space were sutured with catgut and sealed with antiseptic precautions, I placed her in bed with an extension weight and pulley, after Sayre's method, but modified in this manner after a few days, because of excoriation of the calf of the leg. One pulley was put in the ceiling of the room immediately over the leg, which rested on a soft pillow, and there was just enough weight, about two pounds, attached to the pulley to support the leg gently, and to the webbing of the adhesive plaster attached to the sides of the leg were a weight and pulley to make extension in a line with the partially corrected deformity, after section of the ham-strings, but enough weight only to cause gradual extension and without pain, and the weight after a few days was slightly increased; and the line of deformity gradually brought to a straighter normal line as the case progressed toward cure, so that on May 13, 1888, I applied my new knee-joint extension brace with complete success.

It is so simple and comparatively so inexpensive; affords such complete relief; and is so easily applied by the mother of the child or attendant that I believe when it has been once tried, that it will invariably give entire satisfaction for the purpose for which it is used—that is, to procure relief from pain in making an easy, comfortable, and continuous extension and counter-extension of an inflamed and painful knee-joint.

I must give the caution, however, which would hardly seem necessary, that before the use of this brace the limb must be made ready for it; that is, made straight by the appropriate preparatory treatment as in hip-joint disease.

Fig. 8 shows an engraving of the instrument from a drawing which I made; and Fig. 9 shows a drawing exhibiting the manner of applying the adhesive plaster above and below the knee-joint, with pieces of webbing for making the extension and counter-extension. The dotted lines represent the adhesive plaster underneath the bandage.

Fig. 9.

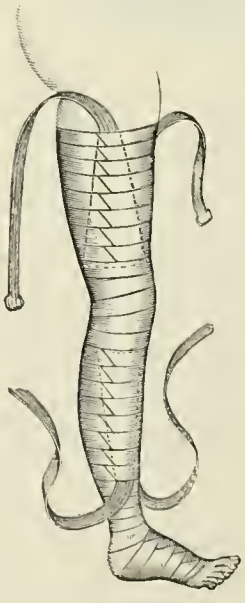


Fig. 10.

The instrument is made in the following manner: Leather might be preferable, but a piece of Russian felt is moulded accurately to the leg and thigh; upright pieces of brass or light iron are riveted to each side of the brace above and below, as seen in Fig. 8, and at each distal end of these pieces of brass is a little roller, over which rolls the webbing attached to the adhesive plaster above and below the knee; thus extension and counter-extension are secured, and an elastic knee-cap and buckles fasten the apparatus about the limb, as seen in an engraving from a photograph of the girl taken about the 15th of May (see Fig. 10). To strengthen the instrument a flat steel bar may be riveted along the back of it. Buckskin or chamois should be sewed along the edges, and the projecting points on each side of the little rollers should be covered with chamois to prevent irritation of the skin.

In infants the manner of managing acute or chronic inflammatory diseases of the knee-joint is confessedly difficult, and I believe the following successfully treated case worthy of brief mention:

April 17, 1888. Dr. L. H. Wood, of Denver, recommended the parents of a little boy, aged eighteen months, to consult me concerning a subacute inflammation of the knee-joint of several months' standing. I adjusted adhesive plaster with pieces of webbing attached to each side of the leg from just below the knee, and I bandaged the leg and thigh from the toes up. The child was chloroformed and a silicate of soda bandage applied over the first bandage; but while applying the silicate of soda bandage, firm extension and counter-extension were made at the knee-joint, and the limb straightened as much as possible without undue force. The pieces of webbing, sewed to the adhesive plaster, for making extension were on each side of the leg above the ankle left free. At night and during the day while the child was asleep an extension weight and pulley were attached to the webbing, the bed being raised at the foot.

May 1. Substituted an adjustable felt splint, moulded accurately to the limb, for the silicate of soda bandage.

13th. New dressing.

20th. Dressing and new splint.

25th. Ice-bags to knee, and their continued use for ten days or longer.

June 25. Dressing and new splint; saw him July 5th and 7th.

July 14. Cured; all inflammation had left the joint, and he could move it freely without pain, and walk on the leg comfortably. As a precautionary measure, I advised the continued use of extension at night.

III. Resection of the Elbow-joint for Gunshot Wound. New Apparatus for Extension and Counter-extension at this Joint.

The management of the elbow-joint, after resection, is a subject that has always more or less interested surgeons; and I think that the apparatus that I used in a recent case will commend itself to the use of military and civil surgeons. This instrumen is equally applicable to the treatment of acute inflammatory diseases of the elbow-joint in their earlier stages, as after resection.

Dec. 7, 1887. Mr. C., a deputy sheriff, while attempting to arrest a desperado near Deer Trail, Colorado, was shot through the right elbow-joint; and I here show you the bones that I removed by resection at night by lamp-light, assisted by two cowboys, with other cowboys and deputy sheriffs looking on. The resection was done through a posterior longitudinal cut, which joined the two bullet-holes of entrance and exit. The wound was dressed with scrupulously antiseptic precautions; my cowboy assistants cleaning their finger-nails with a nail-brush, and scrubbing their hands and arms in repeated changes of hot water and soap in the most approved manner. The elbow and arm were adjusted in a felt splint, and some hours afterward he was removed to Denver and placed at the County Hospital, where I saw him every day or two. Average temperature 99° F.

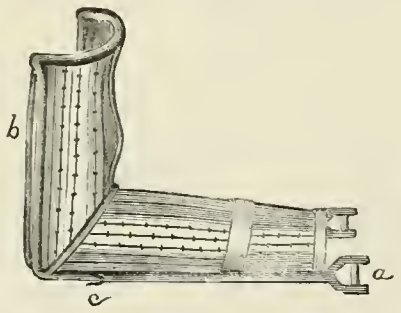
Jan. 6, 1888. Applied my apparatus for extension and counter-extension at the elbow-joint. (See wood-cut engraving of him with splint applied, copied from a photograph, as shown at Fig. 11.) The outside

Fig. 11.

bandage on the forearm, that keeps the splint in its place, has been temporarily removed so as to show its action. The webbing for making extension passes over the little rollers at the lower end of the splint or brace, as seen in Fig. 12 at *a*. In the engraving, copied from the photograph of Mr. C., there is shown a loop of rubber tubing attached to the webbing on the outer side of the arm, the same arrange-

ment exists also for the inner side of the arm. To each piece of rubber tubing is a chain, which can be caught at any link desired into a hook at each

Fig. 12.



side of the brace near its bend at the elbow, as seen at *c* in Fig. 12.

Application and action of the brace.—The forearm having been shaved, and a gauntlet bandage properly applied from the tips of the fingers to the wrist; pieces of adhesive plaster with webbing sewed to these are applied to the inner and outer sides of the forearm, and covered by a bandage from the wrist, joining with the gauntlet bandage. In the meantime the arm is held between pronation and supination, with the thumb directed upward. Traction on each side of the arm by means of the webbing, which is reflected over the little rollers at the lower end of the brace, pushes the whole brace backward, so that the upper vertical portion of the brace, padded and fitted to the front part of the arm, in pushing the arm backward, makes counter-extension at the elbow-joint; while the pieces of adhesive plaster, to which the webbing is sewed and reflected over the little rollers, pull the forearm forward and make extension at the elbow-joint. The brace is steadied and kept to its place by an outside bandage on the forearm. The brace is also secured by a bandage to the arm. In the use of this brace by Mr. C., extension and counter-extension at the elbow-joint were accomplished in a most effective manner, and afforded him immediate relief from pain, and, indeed, made him perfectly comfortable, and facilitated the rapid healing of his wound. The instrument is a stout wire brace smoothly padded. In applying it a short felt splint or piece of pasteboard, lined with cotton batting, should be placed behind the arm just above the elbow to prevent the bandage, which passes between the rod at *b*, in Fig. 12, and the brace, and then around the back of the arm, and also around the brace, from compressing uncomfortably the soft parts on the back of the arm.

Jan. 19, 1888. Mr. C. came to my office, and afterward was photographed.

28th. Wound healed; removed splint; he came afterward to my office to have passive motion practised.

Feb. 6. I broke up the adhesions, under ether, at the hospital; arm extended during one week in a straight position by means of adhesive plaster, weight and pulley; ice-bags to elbow-joint.

13th. Removed dressing, and stopped extension in straight position; pronated and supinated and flexed arm thoroughly under ether; used extension apparatus, as shown in engraving from photograph, which afforded him the greatest relief and comfort.

June 20. I received a letter, probably written by his wife, expressing his gratitude, and saying that he was thrown from a wagon, hurting his arm, and that from this accident he had suffered more than from the gunshot wound. I have not heard from him since; but when he quitted me there was good motion in the joint.

In treating inflammation of the wrist-joint, I think the new Russian felt, as made by Tiemann & Co., is preferable to the sole leather used by Sayre; and no delay in application is occasioned, as with the sole leather, waiting for it to dry; besides, the use of ice-bags is a valuable addition to the treatment. The following case is an illustration:

April 27, 1888. Mr. S., of Denver, aged thirty, had acute inflammation of the right wrist-joint, with the most atrocious pain; applied Sayre's adhesive plaster method, and repeated the same, but with the quickly moulded Russian felt instead of leather; immediate relief; ice-bags to the dorsum of the wrist.

INDICATIONS AND CONTRA-INDICATIONS FOR ALTITUDE IN THE TREATMENT OF PULMONARY TUBERCULOSIS.[1]

By FREDERICK I. KNIGHT, M.D.,
of Boston, clinical professor in harvard university.

It is generally admitted at the present day that the study of the climatic relations of pulmonary tuberculosis is an exceedingly complicated one, not only with reference to the origin of the disease, but also with reference to its progress and termination. It is also now generally admitted that an outdoor life in the purest attainable air is one of the most desirable conditions to secure for those patients affected with the disease, in whom its arrest is hoped for.

The purest, most nearly aseptic air is found on the ocean and at high elevations; but as, in order to be of lasting benefit, stay in the new conditions should be considerably prolonged, ocean air is out of the question for most patients, and one looks to the mountains for a place of prolonged residence. Here we have also, in the beginning at least, an increased respiratory activity, which acts beneficially on the nutrition of the pulmonary parenchyma.

It is, however, well known that high altitude disagrees with and is thoroughly unsuited to some

[1] Read at the meeting of the American Climatological Association, Washington, September, 1888.

tubercular patients, and it is for the purpose of guarding a part, at least, of these patients against an experiment in climate, the result of which might be an irremediable injury, that I ask for a discussion upon a few propositions laid down in a rather tentative way.

In considering the question of high altitude in this paper, I will restrict the application of this term to such elevations as will usually allow of prolonged residence without danger of anoxyhæmia (4000 to 6500 feet above the sea-level).

The contra-indication to altitude in the treatment of patients with pulmonary tuberculosis may be found to pertain to some general factor, such as the age or temperament of the patient, to the type or stage of the disease itself, or to some complication of other disease.

Is there any limit of age which would forbid or render less promising the residence of a tuberculous patient in high altitudes?

I am inclined at present to put such a limit at about fifty years. After that period the chest-walls are less elastic, the patient is more susceptible to cold and sudden changes of temperature, and at the same time less inclined to take active exercise.

Is there any temperament which should be prohibited a trial of the high altitude treatment?

It may be said that the energetic stimulation of the mountain air is suited rather to the phlegmatic than the nervous temperament, and that individuals of the latter type sometimes do very badly in it. These patients usually have an irritable heart, frequent pulse, and inability to resist cold. We must be sure, however, before denying a patient the benefit of this treatment on account of temperament, that we classify him properly, for there are patients, weak and irritable from disease, who at first might strike us as of a neurotic nature, but who are not constitutionally so, and who will improve quickly under mountain stimulation.

What is there in the nature or condition of the disease itself which may contra-indicate residence in a high altitude?

For the sake of convenience, I will make use of the types of the disease employed by me in a previous paper.[1]

1. Patients presenting the earliest physical signs of tuberculosis of the apex, who have as yet shown little, if any, general disturbance from the disease, and who complain only of morning cough and expectoration.

These are the patients who are known to recover under a great variety of conditions, both climatic and social; but it seems to me, after considerable experience, that a larger proportion have recovered under the high altitude conditions than under any other. With a few exceptions, such as for general reasons previously mentioned, I should recommend high altitude for these cases.

2. Patients with more advanced disease, showing some consolidation, but no excavation, nor any serious constitutional disturbance.

High altitude is suited to many of these cases also; but if a considerable area of one lung, or the apices of both are consolidated, if the pulse and temperature are both always above 100, it may be well to try some low altitude first. When quiescence in the morbid processes is established, a change to higher altitude can be made.

3. Hemorrhagic cases. Patients in whom pulmonary hemorrhage has been, perhaps, the earliest, and a frequently recurring symptom, but in whom there is, as yet, no marked febrile reaction, nor much physical evidence of disease.

In my experience this class has done particularly well in high altitudes. The tendency to hemoptysis seems to be diminished rather than increased. This seems to me to be explicable more through improvement in nutrition of the lung parenchyma than by change in the atmospheric pressure, for the lung cannot be considered an internal organ, as far as atmospheric pressure is concerned, but must be considered as subject to the same pressure as the skin, and, therefore, in high altitude more liable to superficial congestion and hemorrhage. Theoretically, therefore, there was good reason for the old custom of avoiding the sending of such patients to the mountains, but practically I have never experienced ill results from so doing.

4. Patients with advanced disease; those with cavities, or severe hectic symptoms.

Patients with advanced disease, or, better stated, with great area of lungs involved, should not be sent to high altitudes. The demand for increased respiratory activity, which cannot be answered, is apt to be quickly followed by fatal result. The existence of a small cavity, in a case in which the disease had became quiescent, would not contra-indicate high altitude. Hectic symptoms would do so.

5. Patients in an acute condition.

None of these should be sent into high altitudes.

6. Cases of so-called fibroid phthisis or interstitial pneumonia.

If the patient is over fifty years of age, if his heart is dilated, or if there is great bronchial irritability, producing harassing cough, he should not be sent into high altitude.

7. Patients convalescent from acute pleurisy or pneumonia, in whom the eruption of tubercle is dreaded.

Unless otherwise contra-indicated, elevation is particularly suited to this class of cases.

[1] On the selection of a climate for patients with pulmonary tuberculosis. Boston Medical and Surgical Journal, April 5, 1888.

8. Patients in whom the tubercular process has seriously invaded the larynx.

It is generally recommended by those familiar with them, that these patients be not sent to high altitudes. In view of modern methods of local treatment, they certainly should not be sent there to the deprivation of this; but should they be sent to high altitudes if they can also have the benefit of good local treatment? With others I have been prejudiced against sending these patients to the mountains, but it may be that this prejudice is groundless for high altitudes which are free from dust, and that they do no worse here than anywhere, the disease when it has once seriously attacked the larynx usually pursuing an unfavorable course. I know that some of the resident physicians of high altitudes do not share this prejudice.

9. Those with complications of other diseases.

Much care should be exercised in regard to cases of this class.

One of the first in importance to suggest itself will be cardiac disease. Cardiac dilatation should preclude the consideration of altitude; and it would be safer to say the same in regard to most cases of hypertrophy, though if this be moderate and of slow development, the patient might be allowed some elevation. There are many patients, however, who are unwarrantably denied the benefit of high altitude on the ground of heart disease, *e. g.*, patients with a cardiac murmur the result of endocarditis quite long ago, in whom there is no evidence of deranged circulation, and no sign of cardiac enlargement. Of course, the mere existence of a murmur is no evidence of cardiac condition liable to be unfavorably affected by rarefied air. On the other hand, there are some patients with nervous derangement of the heart who had better be advised against high altitudes. These, however, would usually be of the general neurotic type before spoken of.

Disease of the large bloodvessels is an evident contra-indication.

Patients with bronchial dilatation or pulmonary emphysema are not usually recommended to high altitudes, presumably on account of diminished respiratory area. I have not had much personal experience with such patients in high altitudes, but would like to hear from those who have had. There are some with excessive bronchial irritability who certainly do better in lower regions.

In regard to renal disease, while it is admitted by resident physicians that acute nephritis, like acute pneumonia, is severe in high altitudes, they claim that chronic nephritis is often benefited.

Intestinal ulceration would not contra-indicate a high altitude, but no great good could be expected from the change.

In cases of epilepsy, diseases of the brain and spinal cord, which are said by some to contra-indicate altitude, I have had no experience.

It looks to me as if the claim that heredity is a contra-indication of altitude must have originated in the mind of one who was afraid lest his percentage of cures should be lowered by bad cases, for, while admitting that patients with hereditary tendency to tuberculosis are on that account less favorable for any treatment, when taken in hand early they are especially benefited by mountain-air life.

Diabetes would seem properly to contra-indicate high altitude treatment, as its subjects are very liable to succumb to attacks of any acute disease, and these would be more liable to occur in a variable than in an equable climate.

Upon what grounds syphilis is put down by some as a contra-indication I know not.

The combination of tuberculosis and syphilis is a very unfavorable one, and liable to result badly in any climate.

TWO SUCCESSFUL CASES OF BRAIN SURGERY.[1]

BY CHARLES B. NANCREDE, M.D.,
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I AM fully warranted, I believe, in reporting the following cases at this time, without waiting for many months to ascertain the ultimate condition of the patients, because each case involves one or more of the essentially new principles of modern brain-surgery, as yet a comparatively unexplored field, accounts of each new inroad upon which should be at once published for the guidance, encouragement, or warning of those so eagerly pressing forward in the same direction.

In the annual oration which I had the honor of delivering before the Philadelphia Academy of Surgery, in January, 1888, I emphasized several procedures which, while not new,[2] certainly were *not* "known to every one," as stated in a review of my remarks; nay, more, so far as I am aware, they have never been practised in this city, although taught by Professors Agnew and S. W. Gross. I shall merely quote part of what I then said as a preliminary to the history of my first case, which admirably illustrates the practical value of some of the principles enunciated:

"The general principles governing the treatment of compound skull-fractures are strictly applicable to gun-shot wounds, so far as the bone lesions are concerned, Wharton's[3] tables so conclusively show the ultimate evils of the retention of a foreign body in the brain, that if the operation can be done without fatal injury to the

[1] Read before the Philadelphia Academy of Surgery, November 6, 1888.

[2] I need hardly point out that *no originality* is claimed, but merely the strong emphasis.

[3] Philadelphia Medical Times, 1879.

encephalon, balls should always be removed, since even primarily such injuries are certain to be followed by suppurative inflammation, which too commonly is of the diffused form, when death is inevitable. The most superficial glance at the histories of recoveries after apparently hopeless brain injuries, shows that the result was due to free drainage, as in the famous tamping-iron case, and one of extensive shotgun disorganization of the anterior fourth of the left hemisphere, which I reported to this Society some two years ago.

"*The principle of free drainage, then*, rather than the mere removal of the foreign body, is the guiding principle of the modern treatment, although to effect perfect drainage, both theoretically and practically, the course of the ball must be followed throughout and disinfected, when the missile being accessible, and capable years hence of producing serious trouble, should be removed."[1]

CASE I. *Ball wound of the anterior lobes of the brain; failure to find the ball, owing to its deflection by the base of the skull; drainage of the track; recovery.* —Henry C., æt. fifty-three years, was brought to the Jefferson Medical College Hospital, by the Police Patrol, at 7 A.M., September 15, 1888, having been found lying at the corner of Twelfth and Spruce Streets, suffering from a bullet wound of the right temporal region, about one and three-quarters inches behind the external angular process of the frontal bone, and the same distance above the zygoma, the ball-track passing downward, forward, and inward to the bone, which was bared and slightly depressed. The man presented no signs of mental or cerebral disturbance, beyond what could be readily accounted for by the ascertained fact that he had been on a week's spree. He slept quietly for some hours after admission, and at 1 P.M. he was etherized at the clinic, when, assisted by my colleague, Dr. Barton, I proceeded to operate as follows:

A large semilunar flap was freely reflected, exposing a slightly starred and depressed portion of bone directly over the course of the middle meningeal artery, but no *perforation* was apparent. Convinced that penetration had occurred, with partial replacement of the small, trapdoor-like fragment from intracranial pressure, I trephined, removing a number of depressed fragments of the inner table, which enabled me to see a perforation of the dura mater, and recognize that the middle meningeal artery was wounded.

After partially arresting the very free hemorrhage from this vessel, and enlarging the bone opening with the rongueur, the patient's head was placed so as to render the ball-track as nearly vertical as possible, when the aluminium gravity probe[2] was introduced, and allowed to *gravitate* along the ball-track, which it readily did, until it struck the base of the skull — somewhere about the lesser wing of the sphenoid bone, it was thought. Thus determined, the track was carefully examined by a Nélaton's probe, but without detecting the ball. Further search demonstrating the probable truth of one of two alternatives, viz.: (1) that the ball had perforated or was imbedded in some one of the bones forming the base of the skull, which view was favored by a bared surface of bone with a doubtful sensation of perforation; and (2) that the ball had struck this bared portion of the base, and had been deflected, burying itself in the opposite frontal lobe; this latter is the view I am inclined to hold.

The manipulations with the brain proper must have occupied fully half an hour, comprising the repeated introduction of probes and forceps, the length and frequency of which manipulations I wish to lay stress upon. Failing to find the ball, a drainage-tube was carried along the whole track of the wound in the brain, and a careful antiseptic dressing was applied, all hemorrhage from the middle meningeal artery having now ceased.

There was little, if any, shock from the operation, no symptoms of paralysis or paresis at any time; no visual, aural, or olfactory disturbances, and, in fact, no cerebral symptoms beyond some slight hebetude and a moderately severe headache during the first five days, which returned partially on a few occasions— usually after dressing the wound—but was promptly relieved by a laxative. Rest in bed, milk diet, and an occasional laxative, comprised the after-treatment.

September 30. Prof. Victor Horsley, of London, saw him with me to-day, and concurred in the diagnosis as to the position of the bullet, finding nothing abnormal in the pupils, reflexes, sensation, or motion.

His temperature before operation was 100° F., reached 101.1° the same evening, touched 101° on the seventh day, and during the second week was about 99.5° at night, 98.5° in the morning, after which it kept below 99°. The pulse was always about normal as to frequency, etc.

I would call attention to some important lessons taught by this case, viz., that the gravity probe will readily, surely, and safely follow the course of a bullet through the brain; that prolonged manipulation of the brain, if guarded by reliable antiseptic precautions, is harmless, and that thorough drainage and disinfection of ball-wounds of the brain will avert that generalized suppuration, the result of infection, which proves so fatal after such injuries. This is the second case recently in which I have introduced a drainage-tube in the bullet-track in the brain with recovery of the patient; the one here reported returned to Boston four and a half weeks after the accident, a minute granulating point remaining, suggestive of a fragment of dead bone.[1]

It is interesting to remark, that the wound I made healed per primam, without suppuration, while the ball-track in the soft parts, having been exposed for some hours before antiseptic measures were instituted, after sufficient time for development of the microörganisms had elapsed—*i.e.*, about one week—presented a slight amount of suppuration. Had the opposite extremity of the wound-track been at an accessible portion of the skull, I should have unhesitatingly trephined at that point, and would, probably, have then been able to find and extract the missile.

CASE II. *Excision of the thumb-centre for Jacksonian epilepsy; recovery, with non-recurrence of the*

[1] THE MEDICAL NEWS, January 28, 1888.

[2] Fluhrer's.

[1] I have recently learned that this man has remained well.

attacks.—Charles L. R., æt. twenty-seven years, with a good family history, containing no record of epilepsy or of any chronic neurosis, states that up to nine years of age he was in perfect health, at which time he was struck upon the left parietal region with a piece of wood with such violence as to be rendered unconscious for three hours. Immediately after regaining consciousness he was seized with a convulsion, which recurred three times in rapid succession; he is positive that it was right-sided chiefly, and, he is told, resembled those which he has recently had. For the next three months he had a diurnal paroxysm, followed by an intermission of two weeks. Next in order was a period of five months, when the fits were repeated three to four times daily, again to be followed by a two weeks' intermission. From ten to fifteen years of age he averaged five seizures a week, while from fifteen to twenty years he was attacked slightly less frequently, averaging only about four fits a week. From twenty years of age until May 7, 1888, the number of attacks increased, so that while he has always had at least a diurnal attack, they have varied in number from this up to forty per diem.

He has been under treatment at various institutions, such as Bellevue Hospital, New York, and the University Hospital, Philadelphia, without benefit, until on May 7, 1888, Dr. Steinbach removed by trephining, at Blockley Hospital, an inch and a half button of very dense bone from the middle of the left anterior parietal region, the posterior segment of the trephine cut slightly overlapping the line of the Rolandic fissure; at this time a scar in the scalp overlying the portion of bone removed, was excised, because pressure upon this cicatrix excited the paroxysms, which, as I am informed by Dr. C. K. Mills, *commenced on the left side—i. e.*, were evidently dural, or, at least, of fifth pair origin. The button was replaced, the wound did well, and the paroxysms did not recur except once, ten days after the operation, until September 29, 1888, a period of nearly five months, when he came under my care, and was admitted September 1st to the Jefferson Medical College Hospital.

August 3, 1888, Dr. W. W. Keen admitted this man to his wards at St. Agnes's Hospital, where he removed the partially necrosed button of bone from a bed of granulations, a suppurating sinus leading down to the fragment.

A careful study of about twenty-five attacks which he had in the hospital during the three days prior to the operation demonstrated that the following order of phenomena was always observed: A sharp pricking pain darts from the seat of the injury toward the median line of the head, a numb feeling is sometimes experienced in the right leg, the right side of the face flushes, and often his vision becomes hazy with flashes of light before his eyes. These prodromata proceed so slowly, that the man asked to be allowed to lie down, recognizing that an attack was coming on. Almost coincidently with these sensations the right thumb is strongly flexed upon the palm, the wrist and fingers are next extended, with only partial action of the interossei, for there an imperfect "claw-hand" formed; the forearm and hand then become strongly but slowly pronated, when flexion at the elbow with rigid fixation of the extremity in the position just mentioned, obtains. Closely following these movements, the head is rapidly and powerfully flexed laterally to the right, with marked rotation to the same side; the tongue is thrust out to the right between the rigidly opened jaws; coincident with all which is conjugate ocular deviation to the right. These movements are all tonic, occupying about nine-tenths of the paroxysm, to be followed by generalized clonic movements, most marked upon the right side, occupying the remainder of the period; the loss of consciousness is always complete.

I had the advantage of studying three of the paroxysms in conjunction with my friend Dr. Morris J. Lewis, who kindly noted the sequence of the phenomena, as above recorded.

The day previous to the operation, after careful shaving, cleansing, and disinfection of the scalp *a la* Horsely, with the aid of Dr. M. J. Lewis, I located the fissures of Rolando and Sylvius; the former of which I marked with a point of nitrate of silver, and the latter at its commencement only by the same agent; in addition, the presumed position of the thumb-centre, which it was proposed to remove, was marked out upon the scalp at the exact position where after the operation it was found to lie. Dr. M. J. Lewis's modification of Thane's and Horsley's method, Hare's method, and the ready method of Lucas-Championnière, the latter only for determining the bregma, were used to locate the Rolandic fissure, which the after-evidence afforded by the operation proved to have been absolutely correct, although the man's head was so exceptionally large as to require a lengthening by some inches of Dr. Lewis's instrument, which allowed for a head measuring thirteen inches. A thorough cleansing, renewed disinfection, and a bichloride dressing, were in turn made use of, and the patient remanded to the ward. Up to two o'clock on this day the patient had *ten* attacks.

October 4th, in the private operating room of the Jefferson Medical College Hospital, in the presence of Prof. S. W. Gross, W. W. Keen, my colleagues Drs. Hearn, Allis, Barton, and Wirgman, who kindly assisted me, Dr M. J. Lewis, who managed the battery, Drs. Dercum, J. M. Taylor, Usilton, Neilson, etc., my interne, Dr. McDonald, and many undergraduates, I proceeded to operate, Dr. Callender administering ether, the patient having received one-quarter of a grain of morphia hypodermatically about one and a half hours previously, and ʒij ext. ergot. fluid. in divided doses during the morning; just before profound anæsthesia was induced, the patient had a characteristic but slight paroxysm.

The extremities of the Rolandic line were marked by nicks in the bone, a large horseshoe-shaped flap, including the periosteum, was reflected, whose centre was attached to the thick and exceedingly dense fibrous tissue—fully three-sixteenths of an inch thick—which filled the old trephine opening. The attempt to control the bleeding from the scalp vessels by an Esmarch tube proved abortive. The crown of a medium-sized trephine was applied below and

somewhat anterior to the old trephine cut, to enable me to reach the non-attached area of dura and pia mater. The bone was exceedingly dense. The dura mater having been incised, it was found that, except below and behind, the membranes were firmly attached over nearly the whole of the lower two-thirds of the motor area. This cicatricial mass was carefully dissected off from the subjacent brain, the two trephine openings having been united by cutting away the intervening bony ridge, and the bony orifice enlarged in all directions by the rongeur, until portions of the membranes which were unattached to the brain were reached. All cicatricial tissue having been excised, including an ovoidal portion of the membranes, about two by two and three-quarters inches, and the fissure of Rolando found, Dr. Morris J. Lewis kindly proceeded to locate the thumb-centre by the battery.

When a spot in the ascending parietal convolution, corresponding to the focal point indicated by Horsley, was reached, *i. e.*, in the second fourth, from below upward, the thumb suddenly flexed, and at once, although profoundly anæsthetized, an epileptiform paroxysm ensued identical in its sequences and details with those observed before operation. Owing to the bone opening requiring to be slightly enlarged opposite this point, the centre had twice again to be located by the battery, each application at this spot, and this only, reproducing an attack. It is of very great interest to note this, for while the discharging centre has been several times located by electricity, I believe that this is the first instance upon record in which a generalized convulsion has been produced by the excitation by this agent of the discharging lesion, although Macewen mentions one in which the curette provoked a paroxysm. Again, although *nothing but boiled water* was allowed to touch the cortex, a strong electric current was required, and no response was obtained in the area assigned to the thumb in the ascending frontal convolution. The shoulder, elbow, forearm, and facial centres were readily picked out, and are situated as delineated by Horsley.

One-half inch of the whole breadth of the ascending parietal convolution was excised, the apex of the wedge reaching into the corona radiata; after this section had been made both the thumb motions were lost and no paroxysm could be excited by the application of the electrode to this spot.[1]

The hemorrhage from the vessels of the pia mater, which must have amounted to from eight to ten ounces, having been in great part arrested by the pressure of serre-fines applied as each vessel was divided, was now permanently arrested by fine gut ligatures very carefully tied by Dr. Allis, and the main trunk, or a branch of the middle meningeal artery, was secured by passing a needle armed with a gut ligature through the dura mater. A final irrigation with the mercuric solution was made, and the flap was rapidly sutured with silk-worm gut and fine silk, small rubber drainage tubes having been previously introduced at the two most dependent portions of the wound.

The patient now and subsequently vomited, apparently, all the ergot injected. The combined effect of opium, prolonged anæsthesia (the patient was fully two hours under ether), loss of blood, and electrical excitation of the brain produced such an alarming amount of shock that only by the most vigorous use of artificial respiration and the battery, atropia, digitalis and whiskey hypodermatically, hot water enemata, etc., was a fatal termination averted.

Upon recovering consciousness all power in the thumb was found to be lost, flexion and extension of the hand, fingers, and wrist were enfeebled, there was nearly complete right-sided facial paralysis, and loss of power of the same side of the tongue, with almost total aphasia. Unquestionably all these paretic symptoms, except those pertaining to the thumb and wrist, must have been due to the combined effect (1) of dissecting off with the adherent pia mater a portion of the external layer of large motor cells of the cortex, as was inevitable from the dense cicatricial nature of the adhesions; and (2) from the deprivation of the cortical centres of speech and the seventh and ninth nerves of their due vascular supply from the destruction of so much of the pia mater whose vessels are mainly terminal. The temperature was, at 10 P.M., 98.2°, pulse 108.

Oct. 5. The wound was dressed in the evening, the blood-stained dressings removed with the drainage tubes, and mercuric dressings reapplied. Temperature, morning, 100.1°, pulse 108; evening temperature 100°, pulse 108.

Upon the third, fourth, and fifth days the wound was redressed, and an attempt made to relieve tension which seemed great, the flap being much elevated, but the probe gave vent to only a few minims of bloody serum, proving that there was no real accumulation of wound-fluids, but that there was protrusion of the brain tissue through the bony opening. A tight stitch was cut on the third day. On and after the third day the temperature remained under 100°, usually nearly or actually normal; while the pulse fell to 70, between which point and 90 it fluctuated until the second week, when it became and remained normal.

By the fifth day after the operation the *paresis* of the hand and wrist had become almost complete *paralysis*, only the most prolonged efforts of the will *at times* producing slight movements of flexion *when the wrist was extended*. This condition persisted for thirty-six hours, when it rather suddenly improved, coincidently with the subsidence of the elevation and tension (?) of the flap; at the same time the aphasia and seventh and ninth pairs' paralysis began to disappear. About the eighth day, doubtful movement in the thumb was noted, which by the tenth day amounted to distinct but feeble flexion yet the grasping power of the other fingers was strong; while at the end of twenty days the patient had regained all the movements and power of the hand, except that the thumb was weak, and while he could unbutton his vest, he could not *button*

[1] No more of this centre was removed, which is said by Horsley to extend into the ascending frontal convolution, because of the impossibility of locating it by the battery and on account of the belief that much of his trouble was due to the extensive meningeal adhesions which had all been dissected away.

it, *i. e.*, the coarser movements remained while the more delicate were, as was to expected, lost.

The patient's general condition was throughout excellent, the stitches were removed, some on the eighth, the remainder on the eleventh day, except two which had been overlooked, while not one drop of pus formed. Becoming impatient of restraint the man eloped October 28th, twenty-four days after operation. So far no convulsions have occurred, but it is, of course, entirely too soon to decide whether the operation will permanently relieve the paroxysms.

In conclusion, I am inclined to criticise my procedures as follows: I believe that morphia was injurious and conjoined with the ether tended to produce the marked respiratory failure, while it can hardly be necessary in operations for epilepsy in which the excised portions of brain are not usually large and are never deep-seated. Electrical excitation of the encephalon is injurious, especially with the strength of current I was compelled to resort to, and in consequence the desired point once located should immediately be marked and removed, to avoid the necessity for a repetition of the application. Anæsthesia, especially when induced by ether and preceded by morphia, should never be prolonged a moment more than necessary, and should not be pushed to its extreme limits. As a corollary to this, the mapping out of the Rolandic fissure and other points on the scalp should be done the day before, as I did, with some indelible agent, so that neither hurry in determining these all essential points nor *prolongation* of the anæsthesia will be necessitated.

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THE POLYPNŒIC CENTRE.

Preliminary Note.

By Isaac Ott, M.D.,
of Easton, Pa.

On a hot day animals like the dog are seen to breathe very rapidly in order to keep themselves cool. To this state the name of polypnœa has been given by Richet. In rabbits etherized and the cortex removed, I have found that removal of the corpus striatum and the parts between it and the optic thalamus abolishes the polypnœa, although the external temperature was elevated. If the corpus striatum and the parts adjacent are electrically irritated at an ordinary temperature the respirations are doubled or trebled in number.

This discovery adds another proof that the basal heat centres are the regulators of body-temperature. For upon these heat-centres antipyrin acts to reduce temperature, and through the basal heat-centres septic poison produces fever.

Exact localization will be published hereafter.

MEDICAL PROGRESS.

On the Surgical Aspects of Typhlitis and Perityphlitis.—Dr. William T. Bull, of New York, at a meeting of the Medical Society of London, on November 5th, read a paper on the diagnosis and treatment of typhlitis and perityphlitis from a surgical point of view. For the purposes of a brief summary, he divided these cases into three groups: 1. Ten cases in which abscess was opened by incision through its walls without opening the peritoneal cavity. In these cases the operation was performed within from seven days to six weeks of the commencement of the attack, and was successful in all, thus showing the advantage of the extra-peritoneal operation. 2. Six cases, in which the peritoneal cavity was opened for supposed perforation. The earliest was performed thirty-six hours and the latest five days after the commencement of the attack. Two of these cases proved fatal. 3. This group comprised only a single case, in which the abdomen was opened on the third day in the presence of threatening symptoms. No pus was found and no evidence of peritonitis, but the pelvis was full of old adhesions.

Referring to the fact that the necessity for early operation in threatened peritonitis had mainly occupied their minds, he observed that it was a universal comment in such cases that the operation should have been performed earlier. He said that while they preached early intervention their practice was not always early enough to save the life of the patient. He urged that there were good clinical reasons for preserving the designation of perityphlitis, since the exact nature of the case was not often easy to make out on the living subject. Suppurative inflammation was induced by perforation, the pus being first in the appendix, and later finding its way into the peritoneum, or the pus might burrow through into the iliac fossa and so a secondary abscess be formed. He thought that the intraperitoneal origin and situation of the abscess might be considered as proved by the following evidence: Both the cæcum and appendix were completely invested by peritoneum, and in operations for well-developed abscess, when the thickened walls had been incised, the iliac sac had been opened up and found quite free from infiltration. Dr. Weir had called attention to this, and he had been enabled to confirm his observations.

The general rule of treatment as to opening up purulent collections as soon as detected was one which had met with general approval. The disease sometimes ended in resolution, and even suppuration might be limited by strong adhesions, and thus permit of a safe termination by a timely incision. The first advance was made by cutting down for pus before fluctuation had been detected, thus preventing the possibility of an accumulation of pus Then came the idea that constitutional signs alone might suffice to show whether there was any pus or not. That, however, did not help them in general peritonitis from perforation. Those cases were a source of great anxiety, and would continue to be so until they insisted upon an explanatory operation before general extension of the peritonitis took place.

He preferred to use the terms "spreading" and "circumscribed" peritonitis, as marking the characteristic feature of each variety. Suppurative peritonitis might

be spreading, circumscribed, and intra-peritoneal, or there might be cellulitis with secondary abscess; he would add hepatitis with or without abscess of the liver. The author then recapitulated the symptoms of the disease, insisting on the surgical importance of fever and shivering. In such cases the abdomen and rectum should be frequently examined, tenderness and the presence of an area of dulness indicating pus. The outline of the cæcum might be made out, filled with feces, and that might exist alone or in connection with a less distinct area of induration, and the latter might persist when the former had disappeared. The end of this should be reached in about ten days. The abdomen might then become tympanitic, with debility, loss of appetite, sweating, and marked anæmia. In order to determine the presence of pus under these circumstances the exploring needle was the best instrument. He mentioned that since this plan of diagnosis was introduced he had heard of peritonitis being caused by it; but he urged that, although the use of the needle was not altogether devoid of risk, yet, if proper precautions were taken, the risk was very small.

He then narrated three cases characterized by the disappearance of the pain and the fever after a few days; but the tumor had persisted, and the needle had revealed the presence of pus in large quantities. In all these cases the abscesses were opened with a satisfactory result. At any moment the symptoms of perforation might supervene, even though the general symptoms had subsided. Severe constitutional disturbance, however, was usual, and might be held to justify interference. By the third or fourth day the tumor would be well marked in the right or left iliac fossa, and it was about this time that the needle was likely to prove useful. The more rapid the development of the symptoms the earlier should the surgeon interfere. Exploration in case of doubt was preferable to waiting for unequivocal information. The operation for perityphlitis might be laparotomy or mere incision. In washing out the cavity no solution should be used stronger than 1 in 10,000 of corrosive sublimate or 1 in 100 of carbolic acid. He then discussed in detail the steps of the operation, and read the notes of his principal cases, concluding with the aphorism that the risk of operation was less than the risk of waiting.

Mr. Frederick Treves said that, clinically, one heard a good deal of inflammation of the peritoneal investment and cellular tissue of the cæcum, but observed that no cellular tissue existed round the cæcum. He asked why the cæcum and the appendix should be singled out as liable to take on a form of catarrh which involved such serious consequences. He thought that it could be shown that the appendix played a very prominent part in the production of typhlitis. In seventy per cent. of the cases the appendix was found to be the source of the mischief. Referring to extra-peritoneal abscess, he said it was very difficult to understand how pus originating within the cæcum could find its way outside. As Dr. Bull had pointed out, it was very rare to find pus round the cæcum, except in connection with pus inside the peritoneal cavity. He endorsed the need for rest, etc., but added that many people would hesitate as to the early employment of the needle. Personally, he considered the procedure somewhat risky. He thought it was exceedingly bad practice to ligature and cut off the appendix, which, after all, was an integral part of the intestine. When removed, the edges ought to be united by a continuous suture, or joined to the parietal peritoneum. Alluding to the fact that typhlitis was very apt to recur, he advocated operating after the second attack, and removing the appendix, which was the cause of the trouble. He mentioned such a case in which after the third attack he had operated, and found the appendix twisted in consequence of the non-development of its mesentery, and acutely distended with mucus. Since the operation there had been no recurrence of the malady, and the patient might be looked upon as cured.

Dr. Weir, of New York, said that, according to some statistics which he had collected of a hundred patients operated on after the eighth day, seventeen per cent. had died, whereas of those operated on before that date, only eight per cent. had succumbed. He looked askance at the catarrhal theory, and, indeed, at the stercoral inflammation. He thought the practice of giving purgatives and enemata was all wrong, seeing that the trouble was due, in the majority of cases, to perforation of the appendix. Perforation of the cæcum was rare, occurring only three times in 300 cases. Last year he had collected notes of a hundred necropsies of typhlitis, and in only six cases was the cæcum filled with feces. He quoted some statistics, according to which the mortality was forty per cent. under the old method of treatment, and only sixteen per cent. since purgation had been abandoned. Reverting to the necropsies, he said that in twenty-two cases the abscess was localized, and in thirty-two cases there was abscess *plus* peritonitis, while in fifteen cases there was general suppurative peritonitis. In only four cases was there any extra-peritoneal disease. About fifteen abscesses out of sixty-seven burst into the peritoneal cavity. The needle was a good means of arriving at a diagnosis provided one fell upon the pus, but the not finding pus was no proof that pus was not present. In some cases in which general suppurative peritonitis was suspected, no tumor could be felt, and in such cases he thought it was advisable to operate.

Mr. Knowsley Thornton said that no surgeon of the present day would hesitate to operate when pus had been recognized to be present. With reference to washing out in these cases, he said that he never found it necessary to do this, and he thought that good drainage was all that was required. He alluded to the troublesome sinuses which were apt to form, the cure of which was often impossible. He mentioned the case of a lad aged seventeen, who had suddenly developed symptoms of typhlitis, for which a purgative and enema were given; a day or two afterward he suddenly became collapsed, and when they operated they found the appendix standing upright, distended, black, and gangrenous, together with the adjacent portions of mesentery. The patient lived for about a week after the operation and then died, probably from an extension of the gangrene along the mesentery. Another case was that of an aged gentleman with symptoms which pointed to typhlitis and a large dull mass on the right side. The question was as to whether this mass was malignant or not. He determined to puncture, which he did with a long, narrow knife. He found at once that he had to do with a solid mass, and desisted from anything further, under the impression that it was a sarcoma. Only a little bloody serum

exuded. Curiously enough, that patient recovered after the puncture and got quite well. He said he had often seen Sir Spencer Wells ligature and cut away the appendix, and he had never seen any ill results follow. Latterly, however, he had taken to bringing the edges together by means of a continuous suture, which, on the whole, was perhaps preferable.

Dr. Bull, in reply, observed that he had purposely only dealt with the surgical aspect of the disease. He doubted whether patients could often be persuaded to undergo any operation after an attack had subsided, as suggested by Mr. Treves. He had never met with any accidents in the use of the exploring needle himself. He said that no one would hesitate to wash out fecal matter, and he asked why they should hesitate to wash out pus that smelled as bad as feces, and was as injurious in its effects. He made his incision from the middle of Poupart's ligament vertically upward, and even a little up outward, and he much preferred this to the median incision.—*British Med. Journal*, Nov. 10, 1888.

Creolin, Iodoform Ointment, and Antipyrin in Ophthalmic Practice.—Mergl, in the September number of the *Centralbl. für Augenheilk.*, reports the following as observed at the eye department of the hospital at Pressburg: creolin was used in one per cent solution in acute and chronic catarrhs of the conjunctiva, in trachoma, and in ulcerative conditions of the cornea. In acute catarrhal conjunctivitis a one per cent. solution was applied twice daily to the conjunctiva of the lower lid; in most cases the redness and swelling disappeared in one or two days, and the secretion diminished but did not entirely disappear; it is thus better after two or three days to use one per cent. solutions of sulphate of copper or zinc. Creolin afforded no good results in chronic conjunctivitis. In four cases of trachoma, however, the remedy appeared to act as a specific: the redness and swelling disappeared in two to four days, the purulent secretion in one week, and the granulations in two to three weeks. In other cases, the redness and swelling disappeared, but the granulations would not submit. Finally, exacerbations occurred in some cases. The author, therefore, now begins the treatment of acute trachoma with creolin; if improvement does not proceed, nitrate of silver and sulphate of copper are used. In trachoma with pains or corneal ulcers, creolin is an excellent remedy: the ulcers clear up and the pannus recedes; in combination with atropine, it causes the ulcers to heal. Although creolin frequently cures corneal ulcers, it sometimes fails. On the other hand, the ten per cent. iodoform-vaseline ointment used by Kauka is of incalculable value, particularly when abscesses have formed in the cornea and chambers. A gauze pad, covered with the ointment, is laid over the closed eyes and fastend with a pressure bandage. Pain is diminished, the ulcers clear up, and the abscesses disappear in two to three days. Upon the recommendation of Aldor, antipyrin has been used to clear up corneal opacities. As the introduction of the powder is painful, cocaine is first instilled and then the cornea is dusted with antipyrin. After the flow of tears has ceased, which occurs in a few minutes, the cornea is rubbed through the upper lid. The results have been good. In the case of a child, having extensive opacities of both corneæ following smallpox, this procedure was adopted. After three months the child, formerly able to see nothing, could walk alone and recognize small objects, such as a watch and coins. Similar results were obtained in two other cases.—*Wiener medizin. Presse*, No. 41, 1888.

Splenectomy.—The operation of removing the spleen was performed recently by Surgeon W. K. Hatch, at the Sir J. J. Hospital, Bombay. The patient was put under chloroform, and Dr. Hatch, with the assistance of Drs. Banks, Manser, Dimmock, and Galleghar, removed the spleen successfully. Collapse followed, and it was deemed necessary to perform transfusion of blood. A Parsi student, Mr. Hirji J. Dady Sett, of Grant College, volunteered to give his blood in order to save the life of the patient, and several deep incisions were made on Mr. Dady Sett's right hand. But Mr. Dady Sett fainted, transfusion was not carried out, and Bhaiaji died within twenty minutes after the operation. This operation is the second of its kind in Bombay. The first was performed by Dr. Blanc, some ten years ago, and it, too, proved unsuccessful.—*Indian Medical Gazette*, September, 1888.

Cannabin in Basedow's Disease.—Valeiri, of Naples, has used cannabin in three cases of exophthalmic goitre with good results, after other measures had failed.

℞.—Cannabin . . . . . gr. ivss.
Sacch. lactis . . . q.s. ut ft. pil. No. v.
S.—To be taken during twenty-four hours.

Or,

℞.—Cannabin . . . . gr. ivss.
Aquæ destil. . . . . ℥iij.
Syrup aurantii floris . . ℥j.—M.
S.—To be taken in teaspoonful doses during twenty-four hours.

A decoction of two to four parts to the one hundred, or doses of fifteen to thirty minims of the tincture may be given.—*Wiener medizin. Presse*, No. 41, 1888.

Acetic Acid as an Antiseptic.—In 3-5 per cent. solutions, acetic acid has given favorable results as an antiseptic in gynecological practice. It has several advantages, in that it is not poisonous, like carbolic acid, it is hæmostatic, and becomes absorbed readily. It does not injure instruments like the bichloride of mercury.—*Journal de Médecine de Paris*, October, 1888.

Internal Administration of Creolin.—Heller (*Deutsche medicin. Wochenschr.*, No. 47) holds that for the thorough disinfection of the cavity of an empyema creolin (1 to 5 : 1000) in lukewarm water is to be preferred to other remedies, on account of its non-toxic and unirritant action in connection with a powerful antiseptic influence; also in putrid bronchitis, in a strength of 1 to 500. In these cases it acts admirably, while in simple, non-putrid catarrh of the bladder, ordinary measures will suffice. In disorders of the stomach and intestines the author thinks that creolin will not be superseded by another remedy. Its antizymotic action in the various fermentative and putrefactive processes in the stomach and intestines is most conspicuous. Its non-toxic quality prevents any anxiety as to an overdose. It is given for meteorism, in typhlitis, for catarrh of the small intestine, for habitual atony of the intestine with constipation

and especially in typhoid fever—it being hoped in the last that the removal of the meteorism will prevent threatened perforation. The remedy has, further, been useful in the flatulency accompanying acute and chronic intestinal catarrh, in dilatation of the stomach, combined with lavage, to overcome the development of gas, in acute and chronic diarrhœa with liquid evacuations. Four to fifteen grains are given three times daily one hour after meals. On account of its disagreeable tarry taste, the remedy is given in gelatin capsules. No unpleasant complications have been noticed even from large doses. In a case of tænia solium, and in one of oxyuris vermicularis its antiparasitic action was manifested.—*Correspond. Bl. f. Schweiz. Aerzte*, November 1, 1888.

Cancer by Skin Grafts.—The *Centrlblt. f. Chirurgie*, 1888, p. 726, mentions the following case, in which carcinomatous nodules were transplanted from one breast to the other by means of skin, and which possesses considerable interest both pathologically and therapeutically. Having determined that a case in which the breast had been previously removed for cancer was too far advanced to permit of a second operation, Hahn obtained the patient's leave to ascertain if it was possible to inoculate the skin over the second breast by pieces derived from the affected skin over the first. Numerous small cancerous nodules were, on April 9th, cut off as evenly as possible with grafting scissors, and transplanted by Reverdin's method on the sound breast, after skin on the selected spot had been removed so as to leave an ulcer for their reception. On May 1st the transplanted pieces had taken firm root, and the ulcer was completely covered with epidermis. On May 19th at the edge of the pieces of skin some small projecting nodules appeared about the size of a millet seed; they gradually increased in dimensions, and by June 26th had reached the size of a cherry-stone. Four days later the patient died. On microscopic examination of sections of the transplanted skin, all of which gave a characteristic appearance, it was evident that the main mass of the tumors consisted of a well-developed connective-tissue stroma, containing irregular masses of epithelial cells inclosed in it. These masses had clearly insinuated themselves into the healthy tissues, which were on all sides beginning to be invaded by the epithelial nests. The above related facts seem to prove clearly that carcinoma can under suitable conditions be inoculated upon healthy tissues; and the practical deduction to be drawn from this circumstance is that great care should be exercised during an operation to avoid taking up pieces of cancerous tissue in the forceps and leaving them adherent to the edges of the wound, where they may afterward find a permanent resting-place.—*The Practitioner*, November, 1888.

Prevention of Diseases of the Joints.—In the following *résumé*, Dr. Leroy Hubbard gives his opinion as to the best method of preventing joint diseases in children:

A careful inquiry by the surgeon into the hereditary history of each family which he may have charge of; and if a well-marked history of hereditary disease, especially tuberculosis, is found, a warning should be given to the parents of the dangers to which the children are exposed.

Instruction in regard to hygiene, diet, etc., with the endeavor to keep the nutrition of the children up to the highest point until they have passed the period at which they are most liable to contract a joint lesion, viz., the period of puberty.

When tuberculosis is present in a family, either as phthisis pulmonalis, or a joint lesion with an abscess, all sputa or discharges should be destroyed or disinfected; and healthy children should be brought as little as possible in contact with the sick. In this way the risk of direct contagion may be reduced to a minimum.

Instruction should be given in regard to the importance of any traumatism of a joint or the parts near it, however slight it may be. After such an injury, absolute rest of the joint should be insisted upon until all evidence of inflammation has subsided and the function of the part is perfectly restored.

The prohibition of all sports or exercise which bring repeated traumatism upon one joint. Young children should not be allowed to go up and down stairs frequently.

After one of the acute exanthematous fevers, a considerable period should elapse before active exercise, such as running, jumping, or long walks is allowed.—*Med. Record*, Nov. 10, 1888.

Salicylate of Mercury in Syphilis.—This new drug, an amorphous, white powder, without taste or odor, is obtained by precipitation, when an alcoholic solution of salicylate of potassium is added to an aqueous solution of nitrate of mercury. Szadek has used it extensively in gonorrhœa, and, while he finds it has marked antiseptic properties, he thinks it does not materially shorten the course of the malady. His formula is:

R.—Salicylate of mercury . . .	gr. ij.
Sodii bicarb.	gr. xv.
Aquæ	℥viij.—M.

For injections.

In primary and secondary syphilis he combines it with subnitrate of bismuth in the form of ointment and applies to the chancre. Internally he gives it in minute doses. In twelve cases he administered it subcutaneously, mixed with gum arabic and distilled water. He concludes that it is as good as any of the preparations now in use, and does not cause local irritation or septicæmic poisoning.—*Journal de Médecine de Paris*, October, 1888.

Ingluvin for Hyperemesis Gravidarum.—As a result of personal experience, Dr. Julius Papp recommends ingluvin for the hyperemesis of pregnancy. In No. 40 of the *Pest. med. Chir. Presse*, he reports the following case: A thirty-two year old primipara, early in her pregnancy, vomited fifteen to twenty times daily, so that she could retain nothing on her stomach. All the usual remedies were tried, but they failed. Subnitrate of bismuth with powdered opium afforded temporary relief. The temperature rose and diarrhœa set in, so that the patient was unable to sit up in bed. The induction of abortion was thought of as a last resort. In the meantime ingluvin was proposed. Seven and a half grains were given morning, noon, and evening, a half hour before meals, with two tablespoonfuls of a one per cent. solution of hydrochloric acid after meals. The vomiting improved after the first dose. The remedy was continued for three

weeks. Ingluvin was also used in dyspeptic conditions and proved superior to pepsin.—*Wiener medizin Presse*, No. 42, 1888.

Baked Water.—M. Tellier finds that boiling water is not destructive to certain microbes. Boiling also deprives it of many of its salts, and gives it an insipid taste. Hence, he recommends that it be baked at a temperature of 302° F. The salts are not dissipated by this method, the water is palatable and entirely free from microbes. He places the solution in a closed metallic jar, which in turn is placed in a bath of water saturated with salt, and heat applied. At the bottom of the metallic jar is an opening with a plug, by removal of which the pure water can be drawn off, and any organic matter retained in a fine filter guarding the outlet.—*Lyon Médicale.*

Injection in Hemorrhoids.—Dr. J. Earl Dennis, of Falun, Kansas (Lauphear's Kansas City *Medical Index*), gives the following prescription for injection in hemorrhoids:

R.—Olei olivæ	℥ij.
Olei ergotæ	℥ij.
Sulph. cocaine (five per cent.) .	℥ij.
Acidi carbolici (pure) . . .	℥iss.—M.

The ingredients should be added in the order named, observing to dissolve the acid (by setting the container in a bucket of very warm water) before adding it to the others. From three to ten drops should be injected into the centre of the pile tumor.

Rosenberg on the Treatment of Laryngeal Phthisis.—In the *Therapeutische Monatshefte*, Hefte 7 und 8, 1888, Dr. Albert Rosenberg returns to the important subject of laryngeal treatment by menthol. He first relates briefly a case of spontaneous recovery from this disease which was under the care of Prof. Fränkel. The ulceration which was situated on the false vocal cords healed with the formation of a membranous band, extending across from the lower surfaces of the ventricular bands and leaving only a round opening of the size of a penholder (*sic*) through which respiration took place. There were no signs of syphilis, and bacilli were found in the sputum.

After reverting to the various local applications recommended in laryngeal phthisis, the author gives a table showing all the cases treated with menthol at the Berlin University Polyclinic, from June 1, 1885, to February 1, 1888. Of the fifty-seven cases enumerated only about twenty were available, chiefly from the patients attending irregularly and staying away after having been seen only a few times. All of these twenty, however, improved under treatment. In nine, actual recovery took place—*i. e.*, the infiltrations disappeared, the ulcerations cicatrized, and existing subjective troubles vanished. In all the cases included in the table the diagnosis was confirmed by the presence of bacilli. The most rapid in healing are the ulcerations, but of these the most obstinate are those on the posterior laryngeal wall. Infiltrations are more resistant, but they often diminish gradually. Commencing perichondritis on the arytenoid cartilages often disappears entirely. The duration of the treatment is from four weeks to four months.

A comparative test of the action of menthol and of lactic acid was made in a case of tubercular ulceration of the velum palati, one-half of the palate being painted with either drug. The menthol side healed more rapidly, and was much less painful than where lactic acid was applied.

In regard to the important question of recurrence, Dr. Rosenberg reports on the present condition of some of the patients mentioned in his previous communication. In one case, in which the patient ran to excess *in baccho et venere*, there has been recurrence; in eight others the ulcers have remained healed, five since March, May, or June, 1886, and three for the period of one year. One patient, who came with extensive laryngeal ulceration and advanced disease of the lungs, died after about six weeks' treatment. The preparation shows, on the posterior wall, an ulcer the size of a bean completely cicatrized, in addition to another unhealed, to which from its direction, the menthol could not be so well applied. With these exceptions, all the patients he has had an opportunity of watching, have remained healthy.

In phthisis pulmonalis he recommends tracheal injections of a ten per cent. solution of menthol in olive oil, combined with frequent inhalation of the drug, by means of a special inhaler, which vaporizes the menthol and allows it to be inhaled at a temperature between 113° and 122° F. He cautions against the use of any but Asiatic menthol, and considers that this drug is as efficacious as lactic acid, while at the same time it is more easily applied.—*London Medical Recorder*, October 20, 1888.

Treatment of Eclampsic and Uræmic Convulsions in Children.—Jules Simon, in *Gaz. méd. de Paris*, 1888, No. 9, p. 99, claims that in the eclampsia of children special attention should be paid to the secretion of urine. As long as the illness lasts the amount of urine will be found to be small; should it, however, increase, we may look for an early recovery. Should the urine increase, but the convulsions not subside, it must not be taken for an unfavorable symptom, as they will, nevertheless, soon disappear. From a prophylactic point of view the dyspepsia of children is of the utmost importance. To prevent all excitement they should be isolated. Should digestive disturbances be due to an eclampsic attack, a rectal injection of glycerine and water should be administered, or the stomach emptied by vomiting, which may be induced by tickling the throat, or, if the child be unconscious, by administering small doses of ipecac. Should the attacks still persist, chloroform or ether inhalations, chloral or mustard baths are indicated. As soon as the attacks subside, and the young patient is able to swallow, bromide of potassium should be administered. Should the paroxysms show signs of exhausting the little patient, a large blister to the nape of the neck may be applied, and allowed to remain until pus has formed. If the attacks are due to uræmia, venesection is indicated (for very small children, leeches may be applied to the mastoid process; should they have reached the age of five or six, cupping must be resorted to in the region of the kidneys); prolonged diaphoresis is also of service.—*Centralbl. für klinische Medicin*, Oct. 1, 1888.

Application for Burns.—As an application for burns, the *Centralbl. für Thérap.* suggests the following:

R.—Ol. olivæ	6 parts.
Salol	1 part.
Aquæ calcis	6 parts.—M.

The Medical News.

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OF MEDICAL SCIENCE.

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SATURDAY, NOVEMBER 24, 1888.

CALOMEL AS A DIURETIC.

ABOUT two years ago JENDRÁSSIK called attention to the value of calomel as a diuretic in the dropsy of heart disease, and the observations which have gradually accumulated show that his conclusions as to the efficacy of this drug were well founded.

Two interesting papers upon the subject appear in the *Deutsches Archiv für klinische Medicin*, Bd. xliii. Heft. 2 and 3. Stintzing, from Ziemssen's Clinic, reports a number of cases showing the effects of calomel in cardiac and in other forms of dropsy. In normal individuals the diuretic action appears to be very slight. In eighteen cases of dropsy associated with various forms of heart disease effective results were obtained in almost every instance, the urine increasing, within a few days, threefold or four-fold in quantity. Thus, in case 13, dilatation of the heart with high grade of anasarca, the urine, which on the fifth day was 650 c.cm., rose on the eighth day, after three days' action of calomel, to 5000 c.cm. In other cases the effects were quite as striking; in many instances the calomel acted on the bowels, producing copious watery discharges. It seemed also to benefit the general condition, as under its use the appetite improved and the patient slept better. In serous exudations, pleurisy and pericarditis, the drug did not appear to have any special influence. Increase of urine is usually noticed from the second to the fourth day. The polyuria continues for, at least, three days, usually for four or five; seldom for so many as ten days. The largest daily quantity in this series was somewhat over 8000 c. cm.

In the same number of this journal, BIEGANSKI reports equally good results in cardiac dropsy. The diuresis occurred, as a rule, two or three days after the administration. His statements are practically in accord with the observations of Stintzing and Jendrássik.

It is usually administered in small doses (0.2 gm.) three times a day. If the diarrhœa is profuse, it may be combined with opium in the form of Dover's powder.

Bieganski found the diuretic action most marked after subcutaneous administration. The action after inunction seemed very slight. The small doses do not appear to be effective; the action is much more marked in medium sized and larger doses. Salivation, stomatitis, diarrhœa and colic are occasional untoward effects.

Bieganski believes that the diuretic action of mercury depends on the direct stimulation of the renal tissue. Jendrássik and Stintzing hold that the drug favors the absorption of the transudate from the tissues.

Calomel cannot be substituted for digitalis in cases of cardiac failure; but when given with it, we certainly see the most beneficial results. The good effect of Niemeyer's pill, so much used in this country in cases of cardiac and hepatic dropsy, may be attributed to this combination.

BOARD OF HEALTH RELATIONS TO TYPHOID FEVER.

FOR a few years typhoid fever has, in Brooklyn, been managed sanitarily as one of the contagious diseases. The Board of Health has construed the rules to require a quarantine of the patient, an exclusion of children from school, and private and prompt funerals in the cases of death by fever. The Kings County Medical Society, after a full discussion, passed a nearly unanimous vote declaring these restrictions to be onerous and unnecessary, and recommending the Board to modify the rules. This has recently been done, and the medical profession of Brooklyn have been notified by circular, under date of November 1st, that the rule requiring the quarantine of typhoid cases will not be enforced. The rules that require the reporting of cases by physicians remain in force in order that the fever-records of the city may be continuously kept, and

that the drainage inspection of infected localities may be facilitated. According to the present views of sanitarians, these two points of oversight, last mentioned, appear to embrace all the official duties of our boards of health in respect of fever; if we except one other point of an advisory nature, which may with profit be added, namely, the promotion of a true and thorough disinfection of the excreta of the fever-sick, and, further, in the case of families of the less-favored class, all of whose means are needed for the purchase of proper diet and medicine, the supplying of potent disinfectants at the public cost. In not a few cities, having a competent health organization, this distribution of disinfectants is in constant practice in connection with the management of the infectious diseases.

THE profession has been shocked by the intelligence of the sudden death, last Sunday afternoon, of Dr. Henry B. Sands. He had left his home only a few hours before in his usual health and cheerful spirits. Although he had not yet entered upon his sixtieth year, Dr. Sands had achieved a position in the front rank as a surgeon and teacher. Conservative and cautious in his methods, though he was, there were few operations in the field of surgery which were not familiar to him. It will be remembered that he was one of the consultants in the case of General Grant, and in that of ex-Senator Conkling it was he who performed the operation which was to give the eminent patient his last chance for life.

The death of Dr. Sands will be seriously felt in the surgical circles of New York, where, as the trusted consultant and wise teacher, he occupied a position that is not readily filled. A sketch of his career will be found n another column.

DR. J. WILLISTON WRIGHT has resigned the Chair of Surgery in the University of the City of New York, and we learn that Dr. Lewis A. Stimson will succeed him.

THE Southern Surgical and Gynecological Association will hold its annual meeting at Birmingham, Alabama, on December 4th, 5th, and 6th, under the Presidency of Dr. W. D. Haggard, of Nashville, Tennessee.

THE Pasteur Institute was opened at Paris on November 14th, by President Carnot in the presence of numerous high officials and eminent visitors. Pasteur received a popular ovation when he advanced to deliver his address. He spoke chiefly of his indebtedness to those who had aided him in the organization of the Institute.

DR. T. GAILLARD THOMAS has resigned his position as surgeon to the Woman's Hospital in the State of New York, and it is stated that the Medical Board has requested the Board of Governors not to fill the vacancy for the present.

THE first of a series of lectures on bacteriology by Dr. G. M. Sternberg was delivered at the Hoagland Laboratory, Brooklyn, last Saturday.

DR. GAMALÉIA has gone from Odessa to Paris, to demonstrate to the Académie des Sciences his method of preventive cholera inoculation. It is his purpose to visit India in March to prove the efficacy of his method on man.

AN International Congress for Criminal Anthropology will be held in Paris from August 4 to 8, 1889. Prof. Brouardel will be honorary president.

THE French War Department proposes to furnish its officers and soldiers with a belt containing a linen bandage ten feet long, two antiseptic compresses, and a safety-pin.

WE are happy to learn that the statement which appeared in our issue of last week in reference to the prevalence of typhoid fever in Montreal is incorrect, and that there does not exist there this autumn any unusual amount of typhoid, and much less than at the corresponding period of last year.

DARTMOUTH MEDICAL COLLEGE, last Tuesday, conferred the degree of M.D. on twenty-six graduates.

SOCIETY PROCEEDINGS.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, November 5, 1888.

THE PRESIDENT, D. HAYES AGNEW, M.D., IN THE CHAIR.

DR. C. B. NANCREDE reported

TWO SUCCESSFUL CASES OF BRAIN SURGERY.

(See page 584.)

DR. W. W. KEEN said that there are several points to which he should like to refer. In the first place, in regard to the history of this case. He was present at the operation of Dr. Steinbach. The button of bone accidentally escaped attention and lay on the chest of the patient for

perhaps twenty minutes before it was placed in the antiseptic solution. The bone was also an unfavorable specimen, in that it was so thick. There was very little diploë, and the circulation was, therefore, probably defective. He understood that the man had hemorrhage from the scalp the night after the operation, requiring reopening of the wound. It is remarkable that the man had no trouble with this piece of bone until ten weeks afterward. The operation was done by Dr. Steinbach May 7, 1888, and the patient was admitted in the latter part of July to St. Agnes's Hospital, complaining of headache, and with a small fistulous opening at the seat of operation with a considerable discharge of pus. This, he stated, had appeared only a week before from the rupture of a small abscess. The probe disclosed dead bone. All that he did was to reopen the wound and remove the bone, which he found white and bare lying in a bed of granulations. At Dr. Steinbach's operation the dura was not opened. He removed the piece of bone which was loose, provided for drainage, and the man recovered in a few days.

Another point to be noted is, that after each of these operations the patient has had no attacks for a long while. And this emphasizes the statement of Dr. Nancrede, that at the present time we can form no conclusion with reference to the ultimate result. We know that excision of a scar, or any other surgical procedure in cases of epilepsy, will frequently arrest the attacks for quite a long period. It is, therefore, desirable that we should, if possible, have reports of these cases one, two, three, or four years after the operation.

The necessity for the careful study of the convulsive attacks which was made by Dr. Nancrede, was emphasized by a case at present under his care. A young girl was brought to him not long since by Dr. Mills. The statement of her mother was, that she had had a large number of attacks, all, with the exception of four, beginning in the ring and little fingers of the right hand. This was followed by flexion of the wrist, the elbow, and finally of the shoulder, and by that time the attack became general. He placed the girl under careful observation in St. Mary's Hospital. She has had three attacks in addition to one which was distinctly hysterical. Only one of the attacks corresponded, and that only partially, to the description given by the mother. On Saturday she had one in which the hand was exactly in the position of the hand used to indicate in printing, with the forefinger extended, and the other fingers flexed. He could not think but that at the present time in our anxiety to relieve these cases we are in danger of hastily reaching conclusions based on the reports of relatives, rather than upon the observation of those not related to the patient, and whose sympathies are not involved, and who are trained observers. He should, therefore, not think it proper to operate in a case of epilepsy until the patient had been observed in a number of attacks by a trained observer. He had three other cases now under observation for the same purpose. This is a point that cannot be too strongly insisted upon. If we do ill-judged operations upon the brain, we are going to bring cerebral surgery into disrepute, and shall have a series of failures, in which more or less marked paralysis or paresis is present, and where injury, instead of benefit, will be the result.

He understood Dr. Nancrede to state that electrization of the white matter underlying the thumb centre produced only very slight movement of the thumb. In the third case that he reported at Washington, in which he excised the centre for the wrist, it was absolutely different. In that case irritation of the cortex produced extension of the wrist, and when this cortical centre was removed, the application of the poles to the underlying corona radiata was followed by the same movements.

He was not at all certain that Dr. Nancrede is right in supposing that strong currents may do injury to the brain. This is a matter to be borne in mind, and investigated with care. He was surprised at the strength of current required in his case. A current that would move the muscles of his hand had no effect when applied to the cortex. This gives rise to the query whether or not, in case the centre cannot be at once removed, it could not be marked in some way, so that having been once found, it will not be necessary again to apply the current. The point might be fixed with the aniline pencil, or by a nick in that part of the brain. This would do no harm, as it would be in a region which we intend to excise.

Dr. Morris J. Lewis said he was astonished at the strength of the faradic current required in Dr. Nancrede's case. No effect was produced by the application to the cortex until the current was so strong as to produce powerful and painful tetany of his first dorsal interosseus muscles, the skin being wet and the metal electrodes placed upon it. The battery was one of Flemming's largest faradic batteries, in perfect order, one-half of the secondary coil being used, with the graduating tube half withdrawn. There was an almost complete failure to obtain a reaction from application of the current to the white matter, this being possibly due to the fact that it was difficult to find the exact spot on the cortex, as a displacement of the electrodes of one-sixteenth of an inch caused the movement to cease. He was uncertain whether the convulsion which came on during the operation was due to the application of the current or simply happened to come on at that time. He thought, in future, that it would not be well to apply such strong currents any more than is absolutely necessary to localize the spot to be excised.

Dr. John B. Roberts desired at this time to report a similar case operated on about six weeks ago. The patient was a child two and a half years of age, referred to him by Dr. Mills, with the history of having been struck on the head early in infancy with a heavy clock. No scar was found. There was no evidence of injury of the scalp and no indentation of the skull. The child had the appearance of one with limited intelligence, but its youth made it impossible to determine how much brain capacity there was. The spasm, which occurred frequently during the day, was located in the left shoulder, the left upper arm, and head. After a good deal of discussion, it was decided to be a proper case for exploratory trephining, with excision of the centre or not, as would appear advisable. Drs. Keen, Mills, Nancrede, and some others were present. There was no difficulty in restraining hemorrhage from the scalp by the use of Esmarch's flat band. He applied the trephine about one and a half inches in front of the Rolandic line and a little to the right of the median line. He first used a two inch trephine and subsequently a one and a half inch trephine, the one cut slightly overlapping the other, and then removed on one side the little spur by means of the gnaw-

ing forceps. Immediately under the bone there was some adhesion of the dura. Opening the dura, the pia was found so œdematous that it could be pitted by pressure, like the leg of a man with dropsy from Bright's disease. Between the pia and the dura there was a thin membrane supposed to be a false membrane, possibly the result of inflammatory action, or from an old hemorrhage.

The poles of the battery were applied, but no response was obtained, although the current was made quite strong. The opinion which he expressed at the time was that this was probably due to the large amount of fluid in the pia. When the fluid was drained off by a snip made by the scissors the convolutions became distinct; but there was nothing to indicate the necessity for further operation and the wound was closed. Healing took place perfectly by first intention except at two points. One of these was at the exit of the catgut. A discharge of cerebro-spinal fluid from these openings kept up for two weeks or so. There had been only three convulsive attacks since the operation, when he last saw the patient. They were within the first forty-eight hours after the operation and were slight. What the lesion was and what he accomplished he was unable to say.

There are some points which have occurred to him as the result of this and other operations. The first is with reference to the trephine. We are all in the habit of using the trephine with the conical crown. This is objectionable since we have learned that it is desirable to preserve the disks of bone. With the conical trephine, especially in a thick skull, the groove formed between the edge of the disk and the rest of the skull is very wide. He saw no reason why we could not use a thinner trephine. The objection made to this suggestion by an instrument-maker was that this would cause slits between the teeth and weaken the instrument. He thought, however, that if the trephine is kept sharp, it does not require much force to cut through the skull, and such weakening would not be objectionable.

The centre-pin of the trephine is difficult to clean. This has led him to suggest that in place of the centre-pin we insert into the trephine a close-fitting solid block, with a short centre-pin projecting from its lower face. After the groove was sufficiently deep the plug could be dropped out. He thought that Dr. W. B. Hopkins once suggested something of this kind, his object being not cleanliness, but the prevention of the perforation of the dura with the projecting pin. In his next operation he proposes to leave the periosteum on the disk so as to give him something by which he can stitch the disk in position. He found considerable advantage in allowing one of the spurs separating the two openings to remain, as it gave more stability to the reinserted disks of bone.

DR. WILLIAM HUNT asked whether the replacement of the button of the bone is not an unnecessary refinement not adding to the success of the operation if it succeeds, but accompanied with risk of the failure of the whole object of the operation by necrosing and thus requiring reopening of the wound? Does anyone know of any accident or untoward event following leaving out of the piece of bone in ordinary trephining? He could conceive of cases, especially in the class we are considering, in which leaving out the disk of bone would be of advantage by relieving pressure. Ambrose Paré tells us, in referring to the silver plate quacks, that the brain will not tolerate so much as a hair, in the shape of a foreign body, and what else is even a small particle of necrosed bone?

DR. W. W. KEEN had the pleasure of seeing Dr. Roberts's operation. The false membrane of which he spoke was very distinct. He had seen quite a number of operations upon the brain besides those which he had performed himself, and had freequently seen the œdematous condition of the pia to which reference had been made. He was at first disposed to regard it as a normal condition, but he now considers that this is really an abnormal condition of the cerebral membranes. The relief which is obtained by getting rid of this œdematous condition, is possibly one of the means of effecting good. This is rather curious, if it be a fact, for von Bergmann has made a point that in operations upon the brain, especially where large portions of the skull are removed, the consequent œdema is one of the barriers to such operation, especially in the removal of large tumors.

He agreed with Dr. Roberts that the little spurs of bone should be saved where it is possible to do so. He did not recall in his own experience any case that would enable him to answer the question of Dr. Hunt, but he thought that the skull would serve its purpose better if it could be reproduced in its entirety rather than by allowing it to remain with a large aperture. He saw that day a case in which, from the explosion of an emery wheel two years ago, a large portion of the frontal bone was removed. The patient is now suffering with epilepsy If due care be exercised, he thought that there will be no trouble from replacing the bone. He thought that the case of a central block instead of the pin, may be an admirable device. There is great difficulty keeping the centre-pin and the inside of the trephine clean. There is also a great deal of difficulty with the set screw. The use of a little shoulder above the point of the pin he adopted in a new centre-pin which he recently had made. Some time ago he consulted an instrument-maker with reference to this large waste of bone caused by the conical trephine. While the adoption of the suggestion of Dr. Roberts might not weaken the instrument too much, yet in the larger sized instruments there would be danger of breaking. The method which Mr. Horsley has recently adopted seems to have some advantages. He now removes a button an inch in diameter, which gives him the thickness of the skull. Then with a Bonwill engine he makes his incision not going quite through the bone. He next with bone pliers readily divides the remainder of the bone. This method saves time and the groove cut in the bone is very narrow. In one case on which he (Dr. Keen) operated last spring, he removed the membranes, but he replaced the button of bone and attached it to the scalp; he completed the centre-pin indentation into a perforation and made a second opening near the edge of the button of bone. By means of a ligature passed through the button and the scalp and tied on the outside of the scalp, he obtained complete union.

DR. JOHN B. ROBERTS said that some time ago he made a number of experiments with the flat burr of Bonwill's engine. He made openings of various sizes and shapes. This will cut as long as it is in contact with bone, but it will not injure the dura mater.

DR. NANCREDE said that it is in the highest degree probable that the membrane found in Dr. Roberts's case was due to the extravasation of blood. The blood pig-

ment, etc., become absorbed, vessels form, and in the course of time the appearance described by Dr. Roberts will be presented. He saw no advantage in leaving the periosteum except for suturing purposes. The periosteum depends for its osteogenetic power on cells identical with those lining the Haversian canals, which are continuous with the medulla. He did see an advantage in leaving the periosteum upon the flap, as its inner layer probably contains some osteoblasts which may be sufficient to carry on the nutrition of the bone beneath. He thought that in many cases there is a manifest advantage in putting back the pieces of bone, perhaps not so much in epilepsy as in trephining for other conditions. If we can secure equable pressure, such as will be obtained from a large piece of bone, the risks of hernia-cerebri are lessened.

The objection to Hopkins's plug for the trephine, so far as antisepsis is concerned, is that it contains a spring difficult to clean; it also makes the instrument unnecessarily heavy.

THE GYNECOLOGICAL SOCIETY OF CHICAGO.

Stated Meeting, September 28, 1888.

The President, Henry T. Byford, M.D., in the Chair.

Dr. Henry P. Newman read a paper entitled

ALEXANDER'S OPERATION, WITH REPORT OF CASES.

His object in presenting a necessarily brief report of seven recent cases of Alexander's operation was: first, to invite the consideration of the Society to the operation of shortening the round ligaments for uterine displacements; and secondly, to refer briefly to the manner of operating, suggesting some modifications in the *technique* which have been applied in five consecutive cases.

The operation was given to the profession more than six years ago by Wm. Alexander, of Liverpool. Since then it has been performed upward of three hundred times, as reported by different operators, with very satisfactory results. Notwithstanding these promising reports, and all that has been said and written by those who are familiar with the operation, and convinced of its utility, there has been much adverse criticism from high authorities in gynecological literature. To this criticism must be attributed largely the tardiness with which the operation has been received and recognized as a therapeutic measure.

It was early objected that the operation was unscientific, upon the grounds that it was not the round ligaments, but chiefly the sacro-uterine ligaments, which were at fault. To this, Dr. Henry T. Byford, in a lecture on the operative treatment of retroversions, very aptly replied: "This objection is rendered untenable by the fact that when we draw the fundus forward, we restore the normal direction of the uterine axis with reference to abdominal pressure, although the whole uterus may be a trifle forward of its natural location; and by the fact that, after the os is rotated backward, the sacro-uterine ligaments tend to retract, and regain their supporting function."

The later objections have been:[1] "(*a*) to the difficulty of finding the round ligaments; (*b*) the possibility of breaking them; (*c*) their absence; (*d*) the insufficiency of their retentive action; (*e*) the complication of the wound, and the danger of peritonitis as a result of opening Nuck's canal; (*f*) the violent pains to which the patient is subjected after the operation; (*g*) the insufficiency of the operation as regards the prolapsus and the surrounding parts, etc." Of which objections, Dr. Doléris avers, from large experience in operating, that they have no important value, and further adds: "I was almost an opponent of the procedure of shortening, in my first studies as to its value. Practice and experience have modified my ideas. Nearly all surgeons have followed the same path. Hesitating at the beginning, they have ended by recognizing the exaggeration of their first objections. Therefore, for my part, I say there is neither serious difficulty of execution, nor are there grave results following the operation. Antiseptic precautions insure operative success. A good diagnosis and a good operative plan will insure therapeutic success."

The clinical evidence thus far obtained is even more decidedly in support of the utility of the operation. Dr. Alexander himself, in his brilliant report of eighty cases in hospital and private practice, has demonstrated the fact that the anatomical cure of retroflexions and retroversions by shortening the round ligaments is a most certain result of the operation; and in cases of prolapsus, when he operated upon the perineum at the same time, he was equally successful with what he termed the "double operation."

The unpublished cases of Dr. Byford, and those reported by Dr. J. H. Kellogg, of Michigan,[1] are confirmatory of the success of the procedure in the hands of American operators. Dr. Kellogg favors the operation in cases of anteflexion combined with retroversion, especially when accompanied by prolapse of the ovaries; also in carefully selected cases of anteversion. He further speaks of the benefit derived in ovarian prolapse, where the ovaries are not held down by adhesions. Of twenty-two cases in which he has operated, twenty presented prolapsed and tender ovaries, with one or both enlarged, and in every instance he reports the prolapsed organs restored to their normal position, and, with two exceptions, they have remained there.

Dr. Wm. L. Reid, of Glasgow,[2] in a paper read before the Gynecological Section of the International Congress, takes what he intends to be an impartial view of the remote results of the operation, and gives some opinions, *pro* and *con*, which he has obtained by correspondence with a few prominent colleagues in England and Scotland. While the weight of these opinions is mainly hostile, it should be borne in mind that it comes from those who have had little or no personal experience with the operation, and consequently must be based largely upon theoretical grounds.

Notwithstanding these adverse views, Dr. Reid's summary of his own cases, though few in number—eight reported—afford valuable testimony to the efficacy of the operation; and even where accidents or partial failures have occurred, the causes are obvious, and modes of prevention present themselves to one who studies them in detail. He classes them as follows: "From a thera-

[1] Doléris, Trans. Am. Gyn. Society, vol. xii. p. 499.

[1] Transactions of International Cong., vol. ii. p. 764.

[2] Trans. International Med. Cong., vol. ii. p. 757.

peutic standpoint, two completely cured, one nearly so, three considerably improved, one in about the same state as before, and one worse, inasmuch as an inguinal hernia resulted. From an anatomical standpoint, six of the eight completely cured, one very greatly improved, and one bad as before the operation." The latter, however, cannot be justly used as an argument against Alexander's operation. It was an aggravated case of prolapse of third degree, of several years' standing.

Quoting the report: "*The uterus measured five and one-half inches in depth, was very heavy, and cervix was torn up to vaginal roof; perineum was quite gone. No pessary could be worn for more than an hour, except when the patient maintained the horizontal position.*" "The ligaments were shortened and patient *kept in bed a fortnight, getting out of bed for a few hours each day of third week, at the end of which she insisted upon leaving the hospital.*" She was not again seen by the operator for three years, when this note was taken: "Patient wore an ordinary Hodge pessary for three months from date of operation and felt quite well. *At the end of that time, during a severe exertion*, the pessary was expelled, and a week or ten days afterward patient felt the uterus coming down, and also a swelling in the left groin. She was, however, able for work, and a year and a half after the operation was married, becoming pregnant immediately afterward. Was very well and comfortable during her pregnancy and labor, the latter lasting less than half an hour, although the child was large. On getting up nine days after the confinement, the uterus came down as badly as before the operation, but she states that she can go about pretty freely, as she has none of the pains from which she suffered before that time. Micturition and defecation normal. On examination, the uterus was found low down in the pelvic cavity, not retroverted, three and a quarter inches deep, and not tender. In the upright position the cervix comes to the vulva. The scar in the right groin is sound, but in the left the inguinal canal is left open, and when patient stands up, a piece of the bowel comes down at the slightest cough."

This case was quoted thus fully, not only to show the impropriety of using cases of accidental failure against the efficacy of the operation, but also to show that the mistake may be made of expecting more from the round ligaments than even their most ardent advocate has claimed to be their normal function. Like other operations for restoring a displaced uterus, it has a definite field of usefulness, and should no longer be used in a haphazard manner, nor should it be expected to do away with other accessory measures.

Due credit should be given to Dr. Doléris, of Paris, France,[1] for his excellent paper on "Combined Operations for the Relief of Uterine Deviations or Displacements," wherein he classifies the factors which unite in maintaining the pelvic equilibrium, and endeavors to point out the indications for the performance of the Alexander and other accessory operations.

In the author's own cases, he had early been convinced of the advisability of using all auxiliary therapeutic measures, preparatory to shortening the round ligaments, as will be seen in the appended cases. In three of the seven, the cervix and perineum were repaired; in one the cervix alone, in one anterior and posterior colporrhaphy were done, and in one scraping or curetting the uterus for vegetations, and in each instance shortening of the round ligaments was not resorted to, until other feasible methods had been given a fair trial. This manner of procedure seemed to him especially demanded in cases of procidentia, particularly when there is a capacious vagina, a relaxed anterior or posterior vaginal wall, or torn perineum; in other words, where anterior and posterior colporrhaphy and perineorrhaphy are indicated. While he would not say that, in these complicated cases, no benefit could result from Alexander's operation alone, he believed it to be good surgery to fortify it by such auxiliary measures as are known to remedy the tissues at fault, and not to over-estimate the proper function of the round ligaments.

For similar reasons he should favor the treatment of long-standing or aggravated cases of flexions accompanying backward or forward misplacements, by such methods as that devised by Professor A. Reeves Jackson and others, for restoring the integrity of the uterine walls.

His seven cases are of such recent date that he related them, in this connection, merely to illustrate a modified method of operating, which has been, in the main, suggested by Dr. J. Frank, attending surgeon to the St. Elizabeth's Hospital, and its adaptability verified by dissections upon the cadaver.

He begins the operation by cutting directly down upon the internal inguinal ring, using the superficial epigastric vein, and beneath this the ilio-inguinal nerve, as guides, lying as they do directly over the canal of Nuck. The superficial landmarks are the same as are usually followed in this operation, *i. e.*, Poupart's ligament, spine of the pubis, and the anterior, superior spinous process of the ilium. The superficial epigastric vein, as well as the internal ring, is situated midway between the two last-named bony prominences. The primary incision, beginning just above the spine of the pubis, and extending one and a half inches or more, upward and outward, parallel with Poupart's ligament, comes at once upon the vein, which will be found in the subcutaneous fat, near the upper third of the cut. This vein, though often the size of a goose-quill, having no material importance except as a guide, is ligated and cut across, leaving the ligature long, for facility in locating.

On reaching the underlying external oblique aponeurosis, which is easily recognized by its glistening-white appearance, it is cut through in the course of its longitudinal fibres, and corresponding with the superficial incision. The ilio-inguinal nerve is now seen lying along the course of the canal, just beneath or mingling with the lower marginal fibres of the transversalis muscles. It is just beneath the point where the epigastric vein crosses the course of the ilio-inguinal nerve that the round ligament can be readily defined. If the muscular and fibrous tissues surrounding the cord are picked up *en masse* by forceps and slightly pulled upward, and then spread over the thumb or finger, inserted beneath, the whitish, slightly flattened, cord-like ligament is seen. It is now isolated, largely by the fingers, and made to run, care being used not to injure the ilio-inguinal nerve, which should be drawn to one side.

The ligaments should now be pulled upon to their full extent, or until the uterus is drawn upward into an erect

[1] Trans. Amer. Gynecological Society, vol. xii. p. 448.

or somewhat anteverted position, as is determined by an assistant's finger in the vagina, who either holds the uterus in this position by a sound *in utero* or immediately inserts a previously fitted pessary. The ligament is stitched to each side of the canal by a suture of silkworm, or chromic acid catgut, passing the stitch through one pillar of the canal, then into the taut ligament and along its longitudinal fibres, and returning it through the pillar of the same side. The *canal* is then closed by two or three sutures of the same material, made to include a small portion of the cord, but drawn only sufficiently tight to approximate the edges. The loop of the ligament, instead of being excised, is secured by a firm stitch uniting the proximate ends, and then folded into the wound after the method of Dr. Burt, of Boston.

The wound is now closed, the customary drainage tube inserted—supplemented by prepared iodoform-wicking drawn into the depth of the tube for capillary drainage. The ligament of the opposite side—which, after being pulled out and held by a sponge or pledget of gauze inserted beneath, was covered with antiseptic gauze and left—is now treated in the same manner.

Strict antiseptic precautions having been used in all details of the operation, permanent iodoform dressings are applied and the wound exposed only in case of rise in temperature or excessive soiling of the dressings, until the fourth or fifth day, when the drainage tube is removed, and the wicking substituted. Patient is kept in bed about four weeks, great caution insisted upon in getting up, and for four or five months following, no severe exertion is allowed. The pessary is retained during this period, and an elastic abdominal support worn.

In each instance the healing has been by first intention, the amount of surgical disturbance nil, and the results, to date, all that could be desired.

The advantages claimed are: the readiness with which the round ligaments are found and separated from their environment, necessitating no tearing of the surrounding parts and disturbance of the tissues about the external inguinal ring, and the terminal filaments of the broad ligament at its pubic end, with the least possible danger of hernia as an after-result.

Should it be possible, as has been suggested by Dr. Frank, and, as is learned from late readings, is practised by Dr. Doléris, to do without the drainage tube, the operation and after-care would be even more simplified and devoid of some of its now possible accidents.

Dr. Henry T. Byford said that he had so far operated in twenty-one cases, and believes in the operation as at first, but he does not operate as much. He has had two failures. They were failures because he ought not to have performed the operation. In one case there was salpingitis with adhesions; in the other case there was an enlarged ovary and hydro-salpinx. The case of salpingitis resulted in slight peritonitis, with a temperature of 102° F. for several days. He took out the pessary at the end of six weeks, and at the end of two months, when she was at her housework, retroversion and peritonitis recurred. The uterus can now be easily held up by a pessary, while it could not before the operation, and will remain up after the pessary is removed until some strain forces it down. At present it is in position without a pessary. He thinks the uterus would stay in good position if the patient would allow him to remove the enlarged tube, but as it is, she is better off than before the operation. In all of his operations, he now leaves the pessary in place from six months to a year. He had another case which might be called a failure, as an inguinal hernia resulted. The patient had been to some of the most eminent gynecologists in Chicago, one of whom wanted to remove the ovaries. She could not tolerate a pessary of any description. Now she wears a pessary without trouble; the uterus is up, and she is one of the most grateful patients he has, in spite of her rupture. On account of this hernia, he threw aside his catgut and he now uses none but silkworm-gut sutures, and leaves those that close the canal and hold the ligament.

One great drawback to the operation is that the patients are not always immediately cured of symptoms. If there have been pelvic contractions or adhesions, there may be a dragging on these for some months. The first case he had was of this kind. The pessary was left in two months. She complained long afterward of a dragging on the groins, but at the end of a year she could, for the first time in several years, do her own housework and take care of her home. She had previously had gynecological treatment for five years, the last two by myself.

It is objected that the round ligament is not a normal support of the uterus. We do not shorten the round ligaments to support the uterus in cases of retroversion, as is so generally misunderstood; we merely turn the fundus forward and depend upon the normal abdominal pressure to hold it forward. Of course, the operation is only for the few cases in which the displacement causes symptoms, and in which it can be replaced, but cannot be permanently retained in position by less available or less dangerous means.

OBITUARY.

HENRY BERTON SANDS, M.D.

Henry Berton Sands was born in New York City, September 27, 1830, spent his entire life there, and there died on the 18th of this month, full of honors, if not of years.

He was graduated in medicine at the College of Physicians and Surgeons in New York in 1854, served as House Physician and then as House Surgeon in Bellevue Hospital, studied for a year in Europe, and on his return, in the autumn of 1856, began practice in New York and was at once appointed Demonstrator of Anatomy in the college from which he had been graduated, a connection which he retained until his death, having been advanced in 1867 to the professorship of anatomy, and in 1879 to that of surgery, dividing the work of the latter position with Professor Markoe.

His practice at first was general, but he early became known and trusted as a surgeon, and for several years before his death he had confined himself entirely to surgery. He served for two years, 1861 to 1863, as Attending Surgeon to the New York Eye Infirmary and St. Luke's Hospital, for ten years, 1866 to 1876, as Attending Surgeon of Bellevue Hospital, for twenty years, 1863 to 1883, as Attending Surgeon of the New York Hospital, and for about twelve years, 1876 to 1888, as Attending Surgeon of Roosevelt Hospital. For many years he was an earnest advocate of the plan of continuous hospital

service, and it was mainly through his instrumentality that the Governors of Roosevelt Hospital were led to adopt this plan in the management of their surgical service; for the last five years of his life he was the sole surgeon of that hospital, and by his fidelity and skill raised the service to a height of efficiency and reputation which has made it second to none.

In the winter of 1885–86 he suffered a slight cerebral lesion, which he accepted as a warning to reduce his labor, and in the spring of 1888 he resigned his position at Roosevelt Hospital, after having a year previously reduced his work in the college so that his lectures should occupy only a single month. In October he returned from a three-months' vacation spent in Europe, apparently in his usual health, and resumed his practice, and on Sunday afternoon, November 18th, while returning in his carriage in company with Dr. A. A. Smith, from a visit to a patient, he suddenly became unconscious, and died almost instantly. The autopsy disclosed no fresh cerebral lesion, and death was attributed to heart failure, as the cardiac walls were extremely thin and one of the coronary arteries contained a recent clot.

Dr. Sands's professional work was marked by extreme care, thoughtfulness, and accuracy, by a full sense of responsibility, and by great sobriety of judgment. Though a skilful and experienced operator, and feeling himself equal to any emergency, he was never blinded to the interests of his patients or the credit of his profession by the temptation to do a brilliant but hazardous operation, and was always cautious and deliberate in his acceptance of surgical innovations and novelties. His contributions to medical literature were not numerous, but they were remarkable for thoroughness, profound thought, accurate judgment, and literary finish.

Direct, straightforward, and upright, both intellectually and morally, he pursued his course openly, vigorously, and with determination, but also with charity and consideration for those who differed with him. Outside of his profession he was a widely read and cultivated man, an animated and attractive companion, a steadfast and trustworthy friend. His death has made a gap in the foremost rank of the profession.

NEWS ITEMS.

Diphtheria from Cats.—A report has been made to the Central Board of Health of Melbourne, describing an outbreak of diphtheria, the cases occurring almost simultaneously in the neighborhood of Dalesford. One child died, but the others are progressing favorably. The local health officer has furnished a report, pointing out the strong *prima facie* evidence that the children contracted the disease from cats, numbers of which are dying in the neighborhood.—*British Medical Journal*, Nov. 3, 1888.

Finger-nails and Nail-brushes.—A painstaking German physician, Dr. Mittmann, of Würzburg, has published in Virchow's *Archiv* a notable paper bearing the remarkable scientifico-naturalistic title, "Untersuchungen von Fingernägelschmutz auf Mikroörganismen." Although this contribution cannot be said to be based on painful experiments on live animals, a certain section of society will hold that there can be little poetry in those who make researches for microörganisms in finger-nail dirt. Yet nails can scratch, and scratches may undergo troublesome pathological changes; moreover, as some authorities have insisted, the nails may seriously affect operation-mortality, for they can convey bacteria in particles of dirt unremoved by the nail-brush. Dr. Mittmann has found that germs abound under the nails of persons pursuing dirty occupations and of careless schoolboys. He cultivated the adventitious matter from the nails of twenty-five subjects, in agar-agar, gelatine, and blood-serum. Micrococci were almost invariably present, next in frequency came diplococci; in only eighteen cultivations were bacilli found; and sarcinæ appeared in three. Moulds abounded and grew freely on cultivation. The subjects were grouped as follows: six ragsorters, four female cooks, three waitresses, seven schoolboys, two barbers, and three undertakers' assistants. The degree of septic virus must vary greatly in groups which represent such different conditions. The use of the nail-brush in private life needs no advocate in this country; on the other hand, it is questionable whether that toilet article may not be a source of danger in hospitals and medical schools. A dissecting-room or ward nail-brush is as likely to convey as to remove septic matter. Possibly it is better to rub the nails on the surface of a piece of antiseptic soap during ablution, subsequently employing a penknife, if necessary, than to use a nail-brush under these circumstances.—*British Medical Journal*, Nov. 3, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 13 TO NOVEMBER 19, 1888.

By direction of the Secretary of War, the retirement from active service, this date, by operation of law, of Elisha J. Bailey, *Colonel and Surgeon*, under the provisions of the Act of Congress approved June 30, 1882, is announced. Colonel Bailey will repair to his home.—Par. 1, *S. O. 266, A. G. O., Washington*, November 14, 1888.

Lieutenant-Colonel Smith, after being relieved by Lieutenant-Colonel Alden, will report in person to the commanding officer Department of Arizona, for duty as Medical Director of that Department, relieving Lieutenant-Colonel Richard H. Alexander.—Par. 10, *S. O. 268, A. G. O., Washington*, November 16, 1888.

By direction of the Secretary of War, leave of absence for four months is granted to Richard H. Alexander, *Lieutenant-Colonel and Surgeon*, to take effect from the date of his relief from duty as Medical Director Department of Arizona, by Lieutenant-Colonel and Surgeon Joseph R. Smith.—Par. 11, *S. O. 268, A. G. O., Washington*, November 16, 1888.

Alden, Charles H., *Lieutenant-Colonel and Surgeon*.—Is relieved from further duty at the Military Academy, West Point, New York, and will report in person to the commanding general Department of Dakota, for duty as Medical Director of that Department, relieving Lieutenant-Colonel and Surgeon Joseph R. Smith.—Par. 10, *S. O. 268, Washington*, November 16, 1888.

Waters, William E., *Surgeon* (Vancouver Barracks).—Is granted leave of absence for one month, to take effect on or about the 1st proximo, with permission to apply for an extension of one month.—Par. 1, *S. O. 129, Headquarters Department of the Columbia* November 9, 1888.

By direction of the Secretary of War, Charles Smart, *Major and Surgeon*, will proceed to Milwaukee, Wisconsin, to represent the Medical Department of the Army at the meeting of the American Public Health Association in that city, November 20 to 23, 1888, and, upon the adjournment of the Association, will return to his proper station.—Par. 2, *S. O. 268, A. G. O., Washington*, November 16, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING NOVEMBER 17, 1888.

Swan, Robert, *Passed Assistant Surgeon*.—Ordered before Retiring Board 19th inst.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, DECEMBER 1, 1888. NO. 22.

ORIGINAL LECTURES.

PERCUSSION AS A MEANS OF DIAGNOSIS OF PNEUMOTHORAX.

A Clinical Lecture, delivered October 17, 1888.

BY EDWARD T. BRUEN, M.D.,

ASSISTANT PROFESSOR OF PHYSICAL DIAGNOSIS IN THE UNIVERSITY OF PENNSYLVANIA; PHYSICIAN TO THE PHILADELPHIA AND GERMAN HOSPITALS.

I desire to present this case in order to give prominence to some diagnostic features of percussion as a means of diagnosis of pneumothorax.

This colored woman entered the hospital, October 5, 1888; she is twenty-eight years old, of healthy parentage. Her father is living at seventy-five years of age, her mother died in childbed. She has had a pretty severe cough for the last three months with muco-purulent expectoration occasionally streaked with blood. She has also had night-sweats. This history without doubt tends to indicate that she has had pulmonary disorder for some time.

On admission she complained of cough and great dyspnœa. This symptom was marked—the respirations the day after admission having ranged from 52 to 70. Temperature October 5th was 100.3°, but on the 6th it suddenly rose to 104°, at midnight had fallen to 98°, and since then the temperature has presented a daily range from 98° in the morning to 102° in the evening. The cough has been constant and attended by the expectoration of abundant muco-purulent matter.

The diagnosis of this case from the outset demanded the consideration of some acute thoracic mischief in lungs or heart. On auscultation the breathing was audible as a harsh but distant murmur over the anterior and dorsal walls of the right thorax attended with a slight metallic tinkle on coughing, which contrasted markedly with the exaggerated quality of the vesicular murmur over the left side of the chest. The mobility of the right side of the chest was reduced, but its contour was not modified nor were the inter-spaces effaced. Palpation was negative. Percussion, however, was markedly suggestive and I would even claim for it a diagnostic importance in a large proportion of cases of pneumothorax. The physical sign on percussion to which I allude is essentially that described originally by Trousseau, who says, "on applying the ear to the posterior wall of the chest on the affected side, and having percussion made in front by an assistant striking a metallic pleximeter with a hammer or a piece of money, a sound may be elicited similar to that produced by striking an empty barrel, or, still more, that produced by striking a bronze vase." This phenomenon was casually pointed out by Laennec, but from the frequency with which I have made the demonstration to physicians to whom it has seemed a novelty or even a trick, I am persuaded that the diagnostic value of this variety of percussion-resonance has been largely overlooked.

When percussion is practised in a case of pneumothorax, the sound elicited must be tympanitic or hollow. The pitch is lower than the tympanitic sound of most cavities; it is lower than the pitch of stomach tympany for the obvious reason that the pleural air sac is large, its walls are tense, consequently the vibrations of the pulses of air occur in long curves, rendering the sound a good example of a low-pitched tympanitic note. Yet in certain cases the vibrations of the pulses of air may be so short that the pitch of the tympanitic sound becomes high enough to render the sound dull to an unpractised ear. It is because it is difficult to interpret correctly the significance of the tympanitic note in these cases that so much stress must be laid on the metallic percussion.

The special characteristic of the sound is elicited when a metallic plexor and pleximeter are used. Two ordinary coins will suffice for this purpose. When these are struck in the open air, only a dull metallic sound can be developed, but when used over a pneumothorax and in case there is a patulous opening through the visceral pleura, and if auscultation is practised while an assistant performs percussion by means of the coins, a beautifully clear, ringing, metallic sound will be heard. This sound does not occur in cases of pneumothorax when the fistulous orifice in the visceral pleura is closed, or in empyema with fistulous external opening. This percussion note is then chiefly characteristic of pneumothorax while the opening in the visceral pleura is still patulous It sometimes happens that the fistulous orifice may be temporarily closed by a flake of lymph forming over the opening, when the specific metallic character of the percussion sound will vanish. It is possible to bound accurately the area of pneumothorax as the specific note disappears when the margin of the lung is percussed.

This metallic tinkle on percussion after the manner described has never been present in any case of intra-pulmonary cavity which I have studied. In cases of old pleural adhesions on the left side, the stomach may be distended with gas, the fundus of this organ will enter the left inferior axillary region and it is, under these circumstances, possible to recognize the metallic timbre of the percussion note. This possibility of error may be quickly refuted by asking the patient to drink a glass of water. The tinkle produced as the water falls into the stomach can be readily detected if auscultation is carried on during the act of drinking. If the pneumothorax is local and sacculated by adhesions between the visceral and costal pleura, this sign, on percussion, becomes of especial importance, since the ordinary percussion note may be so high-pitched that its quality may be imperfectly defined and the resonance dull.

Metallic percussion of the variety just described was present in this patient's case from the first day of the occurrence of the pneumothorax, and it formed the

pivotal consideration in establishing the nature of the case. The absence of dulness and the absence of bronchial breathing on the side evidently the location of the thoracic mischief excluded pneumonia; while the patient's physical appearance and history, imperfect though it was, indicated that the present condition had been antedated by a pulmonary process.

The development of the symptoms of this case is also instructive, since they show that when a pneumothorax has once occurred, several days may elapse before the full characteristic series of symptoms are manifested. It is obvious that the ingress of air has widened the affected side and produced the aspect of rotundity; the interspaces have also been effaced. The chest is motionless, respiration diaphragmatic, the liver displaced downward, and the heart pushed markedly to the left of its usual place in the præcordia. To-day if percussion be practised over the lower zone of the right chest in a line one inch below the angle of the scapulæ, an entire flatness has replaced the tympany; the level of this dulness is sharply defined by the tympany above, and the metallic note from the coins is not recognizable. On sharply moving the patient the Hippocratic succussion-splash clearly shows that the condition is now hydro-pneumothorax. There are no general symptoms to indicate the presence of pus, and no positive physical sign of this character of pleural effusion exists except through the withdrawal of pus by paracentesis.

Differential Diagnosis.—Pneumothorax is almost always unilateral; cases of bilateral pneumothorax have been described, but they are so unusual as to be among the curiosities of medical literature. From unilateral emphysema contrast in pneumothorax the suppressed respiratory murmur, the existence of the metallic tinkle on auscultation, and the metallic note on auscultatory percussion. Since the pneumothorax is commonly associated with the formation of fluid which is either serum or pus, the condition known as hydro or pyo-pneumothorax usually develops and succussion-splash will be the characteristic phenomenon. The displacement of the viscera in pneumothorax differs from general emphysema and the percussion pitch is lower and the tone more hollow. Finally, the antecedent history of cases of emphysema differ widely from those of pneumothorax.

The prognosis in pneumothorax is very serious, the mortality being reported by Potain as eight cases out of eleven—three were cured. West, of Heidelberg, reports forty-six cases; forty-four died, two cured. The issue of the cases is always doubtful because the primary disease in most instances is phthisis, and from the tendency of the pneumothorax to become pyo-pneumothorax. When the first few days after the accident has occurred are passed in safety the duration of the case may be months or even years. A patient recently died in this hospital whose case was the subject of demonstration before this class for two years. Laennec reported one case in which the patient lived six years.

Dèmarquay and Marotte have shown the innocuousness of air injected into the pleural space and Potain has recently advocated the injection of sterilized air as a method of treatment of this disorder; so that in those rare cases in which pneumothorax has occurred from other causes than pulmonary phthisis, if the accident is not immediately fatal the prospect of recovery may be entertained.

The treatment is chiefly palliative, at the time of the shock; stimulants to sustain the action of the heart and respiration, may be employed, and hypodermatics of morphia to lessen pain. When the area of pneumothorax is small an effort should be made, as soon as the acute symptoms have subsided, to compress the affected side by adhesive strips applied so as to lap the unaffected side, and by limiting chest movement to help secure union between the visceral and costal pleura. This plan of treatment, however, is usually insupportable to the patient and must be abandoned. If an excess of fluid exist, paracentesis should first be practised before strapping the chest.

Potain recently reported three cases of pleural effusion consecutive to pneumothorax of tubercular origin successfully treated by injection of sterilized air into the pleural cavity by the following method. A needle similar to that of a hypodermatic syringe, attached by a fine rubber tube to a reservoir of air which has been sterilized by being passed through a strong carbolic solution and then through cotton, is introduced into the sixth intercostal space while the trocar of an aspirator is plunged into the seventh. The air is then allowed to flow in as rapidly as the fluid escapes, its flow being regulated by means of a clip on the tubing so as to obtain about a normal intra-pleural pressure of six to seven millimetres of mercury as shown by the small metallic manometer attached to the aspirating apparatus. At each operation all the fluid was withdrawn and it was repeated as often as the chest refilled; in one case four, and in another five times. The operation was attended by no discomfort apart from the introduction of the needles, and was followed by great relief from all urgent symptoms. The final results were eminently successful: in all three cases the pneumothorax was cured without retraction of the chest, and in two the phthisical process was arrested. In the third case both lungs were affected and the disease which seemed checked for a time went on to a fatal termination. This method is only applicable when the effusion is serous or sero-purulent and not fetid, and should be deferred until the fluid has become either inconvenient from its weight or dangerous from its volume; it is contra-indicated if there is a large communication with a bronchus. The advantages of the operation are, that the dangers from a large quantity of fluid in the pleural cavity are avoided as well as those arising from a rapid evacuation of a large effusion; that the serious inconveniences of frequently repeated punctures are avoided and the lung is allowed the possibility of slow and progressive expansion. Finally, the cicatrization and cure of tubercular lesions seem to be favored by keeping the affected lung for a long time at rest.

I have described this mode of treatment in detail as reported originally in the *Bull. de l'Acad. de Méd.* of November 17th, and in the *Boston Med. Journal* of September 6th, because it seems a practical method and well worthy of trial. If the original opening in the visceral pleura can be closed, gradual expansion of the lung with obliteration of the pleural sac by adhesions is all that can be expected.

November 7th, the general condition of the patient has improved, the temperature has ranged between 98° and 100° for a week past, respirations 40 to 50, pulse 108, but little cough or expectoration, and increasing strength. The amount of fluid in the pleural sac has increased slightly within the past week, being now bounded above by the angle of the scapula.

ORIGINAL ARTICLES.

EXPLORATORY TREPHINING AND PUNCTURE OF THE BRAIN ALMOST TO THE LATERAL VENTRICLE,

For Intracranial Pressure supposed to be due to an Abscess in the Temporo-sphenoidal Lobe. Temporary Improvement; Death on the Fifth Day: Autopsy: Meningitis with Effusion into the Ventricles.

WITH A DESCRIPTION OF A PROPOSED OPERATION TO TAP AND DRAIN THE VENTRICLES AS A DEFINITE SURGICAL PROCEDURE.

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EMMA S., aged fourteen years. Eight years ago Dr. John L. Yard first called me in consultation to see her. She then had hip-joint disease on the right side, from which she recovered with a straight leg, though ankylosed, after about three years of treatment. Later she had several scrofulous outbreaks. Six months or more ago her left ear began to discharge, and this has continued ever since. Her general health also has failed, and in spite of her summer holiday in the country she has returned thinner and paler than usual. About two weeks before I saw her she commenced to have pain in her head with some mental dulness, cerebral vomiting, and moderate fever; temperature 99.6° to 101.6°. Soon some little trouble with her speech developed.

I first saw her September 30, 1888, at 8 P.M. Her temperature was 101°; pulse 72; resp. 16. She had vomited food without nausea for several days. She had had headache for several days, but can scarcely localize it accurately. She had had no chill, no convulsions, and no photophobia. Tapping on the left side of the head scarcely elicits pain at any point, but pressure developed distinct tenderness over an area of about two inches in diameter above and in front of the left ear. There is no œdema of the scalp either at this point or elsewhere. The mastoid is entirely free from pain, tenderness, swelling, or œdema. The child has double vision. There is no ptosis. The tongue, when protruded, deviates slightly to the right. The speech is thick. It is difficult to say whether this is due to some ataxic aphasia, or, possibly, to some paralysis of the tongue. The breath is quite fetid. The internal and external jugulars show no tenderness or hardness. There is no word-deafness; unfortunately, word-blindness was not sought for. The left pupil is much larger than the right and is sluggish in its reaction to light.

Mentally she is rather dull and uncomplaining, in marked contrast to her usual disposition. She has had no irritability.

Oct. 1, 2 P.M. Her intelligence has diminished very much—*e. g.*, she seems to apprehend the command to lift her hand, but not to protrude her tongue, and otherwise is very dull, though not sleepy. She has not spoken a word to-day, and only replied "yes," in thick speech, to the many questions we asked her.

Dr. Howard F. Hansell saw her with us to-day, and reports that the vision is unimpaired; the eye-ground shows the veins much congested on both sides, but more marked on the left than on the right, and rapidly developing choked disks. The squint was ascertained to be due to paralysis of the left external straight muscle. The left membrana tympani was destroyed and the canal filled with pus; no dead bone could be discovered. The hearing, unfortunately, was not tested by the watch, but for conversation was only moderately impaired apparently; abdominal reflex was absent; knee-jerk on the left side more marked than the right, but both of them below the normal. She has to-day passed water involuntarily in bed.

Diagnosis.—Intracranial pressure, arising probably from abscess in the temporo-sphenoidal lobe with pressure on the left sixth nerve, and, possibly, on the base of the third frontal convolution. Exploratory trephining was recommended and accepted readily by her parents.

2d. Her condition has to-day grown rapidly worse, as compared with yesterday. She is unconscious, with sordes on the lips and teeth. Last night Dr. Yard prepared her head for operation in the usual way (see the *American Journal of the Med. Sciences*, October, 1888, p. 335), but by an accident he was not able to take the temperature on the two sides of the head.

Operation.—2.15 P.M. Present, Drs. Yard, W. J. Taylor, H. F. Hansell, M. J. Lewis, and Louis Jurist. The operation lasted from 2.45 to 3.32 P.M. No spray was used. During etherization the respiration was shallow and diaphragmatic, so much so, that Drs. Yard and Jurist, who had charge of the patient, sent for me to the room in which she was being etherized, being doubtful whether it was wise to go on. During the operation the pulse was 124, almost too soft to count. Only one-quarter of a pound of Squibb's ether was used.

The ear was first cleaned and filled with boric acid, I then selected a spot three-quarters of an inch in front of the meatus and an inch and a half above Reid's "base-line" (a line drawn backward from the inferior border of the orbit, through the middle of the meatus, and extended to the occiput), as the place for trephining. I made a small incision through the skin and marked this point with a bone gouge, and then made a flap two inches in diameter with the convexity looking upward, so as keep the most favorable blood supply. The set-screw of my one-inch trephine broke, and I was compelled to use a half-inch trephine, which proved to be quite sufficient.

As soon as the button of bone was removed the dura bulged into the opening distinctly. It pulsated, was very tense and elastic to the touch, and its color was dark. Dr. Morris J. Lewis made the following notes of what was done. I plunged a hypodermatic needle of moderate calibre through the dura, downward and a little forward, to the depth of an inch. Some serum was drawn into the glass barrel of the syringe, but as no pus came the

syringe was thrust half an inch further. The suction on it was only ten minims. Small fragments of what I thought was curdy pus were now drawn into the syringe. Subsequent investigation, however, showed this to be some white brain tissue.

1. The dura mater was now opened by a small crucial incision, as I did not intend to close it later. The brain substance immediately bulged to a considerable extent and pulsated.

2. The needle was next introduced directly transversely about one and a quarter inches, but no pus flowed.

3. A grooved director was now substituted for the needle, and was pushed downward and backward to the depth of one and a half inches, till it impinged on the petrous portion of the temporal bone.

4. The grooved director was introduced almost directly downward, till the bone was struck at the depth of one and a quarter inches.

5. The director was next introduced forward, inward, and slightly upward, in the direction of the sella turcica, for a distance of one and three-quarters inches. In this child it almost reached the apex of the temporo-sphenoidal lobe.

6. The grooved director was next introduced downward, and a little forward, till it struck the bone at two inches. No pus was found in any of these six punctures.

7. Thinking there might be an extra-dural abscess, a periosteum elevator was now introduced between the dura and the skull directly downward, until the bone was reached. No pus was found.

The incision was then extended directly backward, and a half-inch button was removed at a point one and a half inches above the base-line, and one and a half inches behind the meatus. The dura was not so dark, nor did it bulge so much, nor was it so tense as at the first trephine opening. The needle was introduced forward, downward, and slightly inward, to the depth of one and a half inches, and, secondly, almost directly transverse, but no pus was found. The dura here was not opened.

I next drew down the flap, and examined the mastoid foramen, but could find no evidence of pus. As the symptoms and physical signs did not point to the cerebellum, I did not trephine there, though I contemplated so doing for a few minutes. I was so convinced that the intra-cranial pressure was due to fluid, and that that fluid was pus, that I introduced a drainage tube transversely, and a little upward, to the depth of one and a half inches, through the first trephine opening, to favor its escape by affording a path of least resistance. The flap was buttonholed for the exit of this tube, and held it firmly in place. Horsehair was placed under the flaps, and catgut sutures introduced. The buttons of bone were, of course, not replaced, nor the dura sewed. A dry sublimate dressing was applied, and the ordinary recurrent bandages used. She was placed in bed in a good physical condition.

Toward the close of the operation the child's respiration was almost entirely diaphragmatic and irregular, somewhat resembling the Cheyne-Stokes type, but not at all marked. In none of the punctures were there any convulsive movements of the right side of the body, other than those that were partially voluntary. Every puncture by the hypodermatic needle sucked up some fragments of white brain-tissue into the syringe.

10.30 P.M. Her condition was very much as it had been the day before the operation. Temperature 101.6°. There has been but slight oozing from the wound. She had taken milk with a little brandy every twenty minutes without any difficulty. She was not entirely unconscious. She had taken up a piece of newspaper lying on the bed, and seemed to make an attempt to look at it, but otherwise she had not shown consciousness. She passed water involuntarily once.

3d. Morning (first day after operation). The moment I saw her when I entered the room I was struck with the improvement in her appearance. Her eyes were open and she took notice of what was going on around her. She had repeatedly taken a tumbler of milk in her own hands and drunk it. Temperature normal. No inference could be drawn from the pupils as the effect of the atropia had not passed off. At the dressing of the wound she showed appreciation of pain. The wound could not look better. A small amount of oozing and some small flakes of brain tissue were on the dressing, but no pus. The wound was redressed more for the purpose of observation than for surgical reasons. She was in every respect better than at any time since I first saw her. Her squint was still preceptible.

3d Evening. Her intelligence is better than in the morning. When I said "good-bye," she held out her hand. She takes fair nourishment. Recognized her mother and tried to talk. Has passed no water since 5 A.M. Lithia water was ordered.

4th. A.M. (second day). Mind not quite so clear as last evening; she noticed the blood-stains on her night-dress, which seemed to cause her distress. Has had no sleep, and has been somewhat restless. Passed water twice. Temp. 100.6°, pulse 120.

10.30 P.M. Temp. 102.4°, pulse 163. Quite drowsy, and took no notice of change of night dress. Passed water twice since this morning. Slept four hours this evening. Took some milk.

5th. 12 M. (third day). Restless all night, no sleep till 5 A.M., since then has slept considerably. Passed water three times in the night. Temp. 103.7°, pulse 150. Dressing changed. The wound looks perfectly well; no discharge; drainage tube removed.

7.15 P.M. Rather more intelligent during the afternoon. An enema moved the bowels freely; shook hands with Dr. Yard when he came in; took no nourishment; passed water twice. Temp. 103.2°, pulse 153.

6th. 10.25 A.M. (fourth day). Has taken very little nourishment; passed water twice; almost comatose; breathing labored. Temp. 104.8°, pulse 172.

6 P.M. Gradually sank and died at this hour.

Post-mortem, Oct. 8th, forty-five hours after death. The wound was well united, though the flaps were easily torn apart. There was no meningitis apparent on removing the skull cap. The bloodvessels were somewhat dilated, those on the right side rather

more than those on the left. Slight œdema was noticed in the track of the middle cerebral vessels. On lifting the frontal lobes a great deal of œdema was noticed which obscured the cerebral substance around the peduncles and pons and was so marked over the medulla and cord that they could not be seen until the fluid had escaped, which it did immediately upon removal. Then, saving some injection of bloodvessels, the brain substance and membranes appeared nearly healthy. The œdema extended distinctly to the fifth, to the auditory and facial nerves, and to a less extent also to both optic nerves, all more marked on the left side. There was not the slightest adhesion at any point, either at the trephine openings or on the under surface of the brain; no false membrane.

At the second trephine opening, the point where the two punctures were made was barely recognizable on the cortex, not the slightest adhesion or inflammation being observed. The posterior puncture was through the middle temporo-sphenoidal convolution at its upper border; the anterior in the superior temporal convolution. The point where the drainage tube had been inserted through the first trephine opening was patulous. It was not, however, surrounded on the external surface of the cortex by any evidences of inflammation.

Transverse sections of the brain were now made, beginning with the cerebellum, which was perfectly healthy at every point. The sections crossing the track of the drainage tube showed not the slightest trace of inflammation surrounding its track. Only the portion of the brain tissue immediately in contact with the tube was slightly discolored, and possibly softened to a depth of not over one-sixteenth to one-twentieth of an inch in thickness. The length of the drainage canal in the brain itself was one inch. *The internal extremity was within one-quarter of an inch of the distended left ventricle.*

The sections of the brain were made about one-third of an inch apart, and showed entirely healthy brain tissue. Although observations were made with great care and each section cleaned by pouring water over its cut surfaces, not the slightest trace could be found of the punctures made by the hypodermatic needle or the grooved director; no laceration of the tissue; no effusion; no softening; no hemorrhage; nothing to give any evidence that the brain had been touched.[1] The lateral, third, fourth, and fifth ventricles were all very much dilated and filled with serum. The posterior horn of the lateral ventricle was three-quarters of an inch in diameter, and the third ventricle one inch in diameter. There was no inflammation of the dura at any point, not even in the track in which the periosteum elevator had been passed between the dura and the skull down to the bone. There was no caries of the petrous bone.

The only other organs examined were the kidneys. The left one was moderately congested, but normal in consistency; the right kidney normal in every respect. A half ounce of urine was drawn from the bladder which was found to be albuminous. There was no œdema of the face nor other part of the body, which was very much emaciated before her illness.

Dr. J. P. C. Griffith made the following report on the specimens which were given to him for examination:

The membranes covering the medulla, and the portion of cord attached to it were much thickened, and adherent to the tissues beneath. Portions were carefully dissected off in water, stained in hæmatoxylon, and examined in glycerine. Under the microscope there were revealed the evidences of a tubercular meningitis; the tissues being thickened and infiltrated with lymphoid elements, while in certain portions tubercles could be distinctly observed.

Remarks.—I have reported this case somewhat minutely on account, first, of the question of diagnosis, and, secondly, the surgical treatment. This last is extremely important as showing first that the brain can be explored thoroughly, repeatedly, and deeply without any apparent injury either to its substance or to its functions; and, secondly, that so far as this case enables us to judge, in cases of intracranial pressure and dropsy of the ventricles, it would be easy in the future to trephine and to tap the ventricles and give exit to the fluid, and possibly effect a cure, without doing any damage to the brain substance.

First, in the matter of the diagnosis, Dr. Yard and I recognized that the trouble was due to intracranial pressure, and the only question was the cause. My own judgment was decidedly in favor of abscess of the temporo-sphenoidal lobe, and for the following reasons:

A scrofulous child, purulent discharge from the ear for six months or more, sudden vomiting evidently cerebral, headache, a tender spot above and in front of the left ear and at no other point, possible aphasia, paralysis of the left sixth nerve, congestion of the optic papilla more marked on the left side, pulse normal, temperature while not normal or sub-normal, but little elevated until a little while before death.

Negatively, I excluded meningitis from the absence of delirium or delusions, the absence of photophobia, of contracted pupils, convulsions, and of facial twitchings, the absence of high temperature, no marked rigidity of the neck muscles, no prior irritability, no injection of the conjunctiva, no grinding of the teeth. I excluded abscess in the cerebellum from the perfect coördination of movements which always existed, and the entire absence of any localized symptoms of cerebellar disturbance. At the operation the examination of the mastoid foramen showed no evidence that the pus had travelled back from the petrous bone toward the cerebellum along the track of the

[1] In the discussion Dr. Osler stated that when examining the specimens with Dr. Griffith, after hardening in Müller's fluid, the line of the puncture was visible. In the first brain we could not see it.

lateral sinus. Although either the presence or absence of pus at this foramen is not a physical sign on which I would rely too much, yet taken with other signs it is probably of value as pointed out by Mr. Barker.

The motor region was excluded by reason of the entire absence of paralysis, the slight possible paralysis of the tongue being due more likely to the direct involvement of the seventh nerve, as it passed through the petrous bone.

Abscesses in the frontal and occipital lobes were excluded by their great rarity and by the absence of any local symptoms. Mastoid disease was excluded, as there was no œdema or other symptoms of local mischief. Abscess between the dura and the skull would probably have produced œdema of the scalp, which was absolutely absent, and the exploration at the operation demonstrated the non-existence of such an abscess. Plugging of the lateral sinus would have produced hardness and other signs in the internal and external jugular veins, and other symptoms of pyæmia. No such changes or symptoms were observed. It seemed, therefore, both by exclusion, as well as by positive evidence, that there was mischief on the left side, and almost certainly abscess of the temporo-sphenoidal lobe. The presence of pulsation at the trephine opening was extremely significant as against the diagnosis of abscess, and together with the elastic tension and bulging would be of the greatest value in enabling us to diagnosticate effusion into the ventricles. These means of diagnosis, however, are only of value during and not prior to the operation.

The results of the operation show that, saving for a slight disintegration of the brain tissue in a very thin layer round the track of the drainage tube, the cerebral substance was healthy. A most remarkable thing to my mind was the entire absence, even after the most careful search, of any evidence of puncture in the brain tissue.

In the various punctures I employed a hypodermatic needle in four of them, and a grooved director in four others. When the dura is intact the syringe must be used, but it should be used with great caution on account of the suction, for, though I had a suction cavity of only seven to ten minims in the barrel of my syringe, yet the brain substance was sucked up into it every time. I cannot but think that the introduction of a grooved director would be safer and certainly, as shown by the post-mortem, did no more injury to the brain substance than the syringe itself, with its certain loss of tissue. The grooved director would allow pus or any other fluid to escape by its deep groove. The sharp point of the needle might readily puncture a vein, a large artery, a sinus, or possibly one of the large nerves, but the blunt end of the director exposes us to no such danger, and invites to a more extended and thorough exploration.

That this is not a merely theoretical objection to the needle is shown by Beck,[1] who relates a case of hemorrhage into the lateral and fourth ventricles as a result of its use, and by Dr. B. A. Watson, who tells me that in his researches on puncture of the heart as a therapeutic measure, such needle-punctures of the vena cava were invariably followed by hemorrhage. Even the introduction of a drainage tube into the brain, in a case operated on by Weir, has been followed by fatal secondary hemorrhage from injury to the middle cerebral vessels.[2] I believe that the grooved director might be fearlessly passed in until it touched the base of the skull, or to the falx or tentorium, provided that important cortical centres, the internal capsule, or the great basal ganglia, are not in its path. It is, I fear, only too probable that these structures would be an insuperable barrier to any such puncture; but even this is a question that can only be decided by trial—a trial, however, that should be most cautiously made, first upon animals and then upon man, and even then in the human subject only when forced upon us by circumstances. I am perfectly well aware that the tendency is to substitute the knife for the syringe, and that v. Bergmann has even formulated it as a rule. This, as an operative procedure, or for superficial exploration, has my entire assent. But for *deep* exploration I am convinced that we shall do less harm by the director; and that as it is less dangerous we shall be more thorough in our explorations with it, and so learn much more than by the knife.

In the use of any instrument, whether a grooved director or a needle, the greatest care should always be exercised to insert it in a direct line, and to withdraw it in the same line so as not, by a lateral sweep, to lacerate the brain substance.

Proposed Tapping of the Ventricles as a Definite Surgical Operation.

As a result of my observations in the present case I would definitely propose in any similar case of dropsy of the ventricles, or of abscess in them, that tapping of them be done as a systematic operation.

In some very brief remarks at the late Washington Congress, I drew attention to the analogy between the cavity of the head and the cavities of the chest and abdomen. In the latter two we recognize various viscera, differing in functions and location, and recognized each by its own physical signs. We recognize, also, their diseases by symptoms and physical signs differing for each organ, and these differences enable us to diagnosticate disease of this or that viscus. In the cavity of the head we have recognized too much only one viscus—the brain. But, I argued, the various cortical areas or centres should be regarded as analogous to so many viscera,

[1] Bergmann: Chir. Behandl. Hirn Krankh., p. 52.

[2] The Medical News, Oct. 6, 1888, p. 401.

fused into one mass physically, differentiated functionally. We can recognize disease of the arm, or face, or speech-centres by the differing locality of the lesions, and by the differing symptoms, as palsy of the face, or the arm, or aphasia, no less than by means similar we recognize diseases of the stomach, or liver, or kidney.

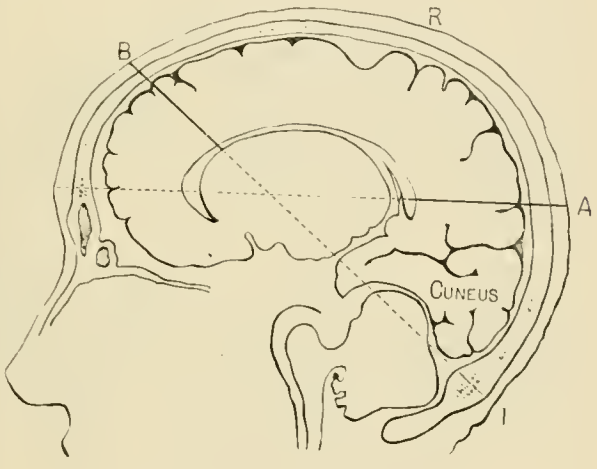
I would go further now, and draw a similar analogy between the serous membrane of the abdomen and that of the brain, and plead for a similar treatment for both in case of similar diseases. As we now open the belly and drain in tubercular peritonitis with such remarkable success, I would propose that we do precisely the same for the brain. That it can be done with precision and without serious injury to the cerebral tissues the history of the present case, I think, abundantly shows; that it is even *more* urgently necessary in the brain than in the chest or belly seems clear when we consider the relative effects of pressure in the two cases. In the chest or belly the walls are more or less yielding, and the viscera hollow or spongy, to a large extent. They can bear great and long-continued pressure with but little damage to their ultimate integrity, or to life, if the pressure be relieved within any reasonable time.

Not so in the cranium. The walls are rigid bone, and the brain can undergo but little pressure, and for a brief time (except it be gradual, as in chronic hydrocephalus) without inviting death. The fatal issue is so uniform that *any* means that holds out a reasonable hope of relief, even though it involve great risk to life, should at least be tried; and the proposal in the present paper seems, at least, to involve but a moderate danger to life with a reasonable probability of success.

It may be objected that much draining of cerebro-spinal fluid would be dangerous. I answer, first, we do not know till we try. Secondly, in my brain tumor case (*American Journal of the Medical Sciences*, Oct. 1888) there was probably a very slight wall between the cavity occupied by the tumor and the lateral ventricle. This wall subsequently ruptured, and gave exit daily to a quantity of cerebro-spinal fluid sufficient to wet an ample sublimate dressing continuously for three weeks. In Mr. Horsley's case of spinal tumor the same abundant drainage continued for a long time. In the *Comptes Rendus* (1888, cvi. 1693) Lucas Championnière reports a case in which no ill results followed such an abundant flow of the cerebro-spinal fluid as to wet the dressings, the pillow, and the bed. Such abundant and long-continued drainings do not, therefore, seem to be a danger. Thirdly, experience may show us that possibly in the head, as in the abdomen, simple evacuation of the fluid without its continuous drainage, may be not only feasible, but best. Of course, for pus in the ventricles the drainage should be prolonged, if, indeed, so fatal a lesion allow of any treatment.

As to the technique, I have made some dissections and trials on the cadaver, with the help of Dr. Wm. J. Taylor, with the following results: We must avoid (1) the motor zone; (2) the neighborhood of the fissure of Sylvius, on account of the middle meningeal and middle cerebral arteries and their branches, and also because access to the ventricle can only be had here through the island of Reil and the basal ganglia. Hence, the first trephine opening in the present case should be rejected as unsuitable. But it must be remembered that it was chosen in this case not to puncture the ventricle, but the temporo-sphenoidal lobe. Only the wide distention and overlapping of the lateral ventricle, in fact, saved me from doing harm, I suspect, by my drainage tube. (3) We must avoid known sense-centres, and utilize, so far as other considerations allow, the so-called "latent zones."

FIG. 1.



(Drawn by Dr. John M. Taylor.)

Antero-posterior section of the head one-half inch from the middle line. R, fissure of Rolando; I, inion; A and B (solid), the lines of puncture, the dotted lines showing their imaginary continuation to the opposite fixed points.

Moreover, the way in which punctures are described in this present paper, and most others, is extremely inexact and unsatisfactory. The exact point of the trephine opening is noted, and then the puncture is described as "downward and forward," "forward and a little inward," etc. I propose to substitute for these loose descriptions, the exact point on the skull at which the line of puncture would emerge were it prolonged.

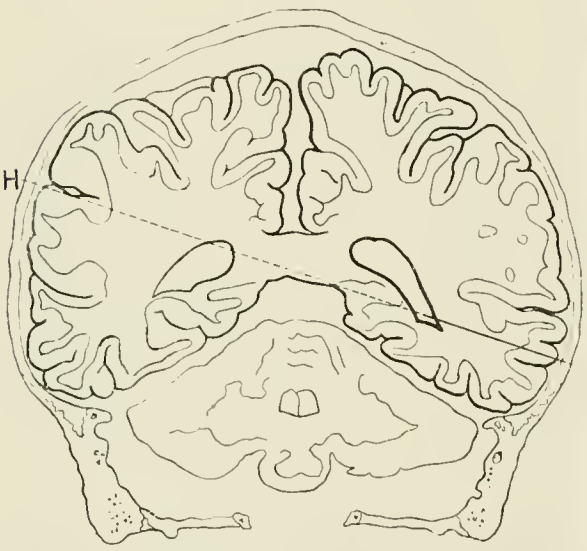
Provisionally, therefore, and until experience will show us better, I would propose three routes as practicable.[1]

[1] Dr. Harrison Allen (The American Journal of the Medical Sciences, July, 1873, p. 224) proposed at autopsies to examine

I. Trephine half-way from the inion (the external occipital protuberance) to the upper end of the fissure of Rolando, half to three-quarters of an inch to either side of the middle line. Puncture toward the inner end of the supraorbital ridge of the same side (Fig. 1, A). The puncture will pass through the precuneus, and the normal ventricle will be struck at some point in the posterior horn at from two and a quarter to two and three-quarters inches from the surface of the scalp.

II. Trephine at one-third of the distance from the glabella to the upper end of the fissure of Rolando, and half to three-quarters of an inch to either side of the middle line. Puncture in the direction of the inion (Fig. 1, B). The puncture will traverse the first frontal convolution well in front of the motor zone, and the normal ventricle will be struck in the anterior horn at about two to two and a quarter inches from the scalp.

Fig. 2.



(Drawn by Dr. John M. Taylor.)

Transverse section of the head one and a quarter inches behind the meatus. The continuous line shows the line of puncture, the dotted line its imaginary continuation to the opposite side of the skull.

III. Trephine one and a quarter inches behind the meatus, and one and a quarter inches above Reid's base-line. Puncture toward a point two and a half inches directly above the opposite meatus (Fig. 2). The puncture will traverse the second temporo-sphenoidal convolution, and enter the normal lateral ventricle at the beginning, or in the course of the descending cornu at a depth of about two to two and a quarter inches from the surface.

the fluid in the ventricles "by a vertical incision made from the vertex of the brain about six lines to the outer side of the great longitudinal fissure," an incision that will always reach the ventricles, but would injure the motor centre.

I have endeavored to give these points for trephining less in inches than in proportionate parts between fixed points, which is the better method. In the third route the measurements are for an adult skull, and are to be somewhat reduced for children. The depth necessary for the puncture can only be stated approximately (*a*) on account of the point of emergence into the ventricle varying with slight differences in direction; (*b*) on account of different thickness of the skull, and overlying soft parts; and (*c*) variations in the diameter of the entire skull from youth to age, and also in different adults. All these are measurements to a normal ventricle. In a distended ventricle from effusion the distances would be proportionately less.

The posterior route has the advantage of better drainage. But whether this will be really an advantage is a question. Experience may prove that evacuation of the fluid without drainage may be best. It avoids the cuneus and will not therefore produce hemianopsia.

The anterior route has two disadvantages: first, the scar on the forehead, and, secondly, unless great care is used in directing the puncture and its depth, the corpus-striatum may be injured. Compared with the danger of the disease the first objection is slight, and in a distended ventricle the second would lessen *pari passu* with the degree of the distention. The advantages are that it is high enough to avoid the frontal sinus, injures no known centre, and if evacuation and not drainage be desired this will easily give it.

The lateral route has the great advantage that, in a case like the one here reported, in which there might be a reasonable doubt as to whether there was an abscess of the temporo-sphenoidal lobe, or dropsy of the ventricles, both explorations could be made from one trephine opening. It could either be made to favor drainage if dependent, or to hinder it by lying with the operated side up. It penetrates a possible centre for hearing of the opposite side, but as it has been utilized for puncture in a number of cases of abscess, in the temporo-sphenoidal lobe, and no ill result has followed as to hearing, this objection would seem to vanish. At the ventricular end of the puncture it has the danger of possible injury to the thalamus, but this, I suspect, in a distended ventricle would not be very great. On the whole, I should at present favor this route until we find a better one.

An inch or a half inch trephine opening having been made, the dura should be examined. If it pulsate, bulges in the wound, and is tense and elastic to the touch, it will confirm the diagnosis; should it be tense, elastic, and bulging, but not pulsate, abscess or tumor should be suspected and sought for. The diagnosis of dropsy of the ventricles having been confirmed, the dura should be incised conically

and the grooved director now be introduced in the direction, and about the depth above indicated, unless fluid is found more superficially. If the first puncture does not reveal fluid, a second or a third may be made. When found, it should be evacuated by the introduction of a dressing or hemostatic forceps. I should then introduce a drainage tube for twenty-four hours or more, according to circumstances. The rest of the treatment would be the usual one in brain cases.

A STUDY OF SOME OF THE PYOGENIC BACTERIA AND OF THE GERMICIDAL ACTIVITY OF CERTAIN ANTISEPTICS.

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AT the present day, after the researches of Scheurlen, Rosenbach, and others, it seems hardly necessary to take any position in defence of the statement that there is no suppuration without the previous presence of some bacteria, and the writer prefers not to enter upon this part of the question at all; but there are a few points in connection with the action of pyogenic bacteria and their growth in the presence of the various antiseptics, to which he would like to call attention.

For present purposes we may speak of the three or possibly five varieties of staphylococcus, and the two varieties of streptococcus known to pathologists, disregarding most of the other ten to fifteen forms of bacteria known to be concerned in the possible production of pus. The writer has been studying the physical properties of these two generic forms in connection with the clinical phenomena attending their appearance. His own researches have led him to agree thoroughly with Ogston as to the biological and pathological differences between these two forms. From his own researches he had about arrived at conclusions which had been already carefully summarized by Krantzfeld in a thesis published two years ago in Russian, but which had only recently come to his knowledge through translation. Without endeavoring to give all the facts upon which these conclusions are based, the essential items may be stated as follows: All the staphylococcus forms, including the pyogenes albus and aureus and the citreus albus and flavus, grow more rapidly than the streptococcus; they grow better in the absence of oxygen; they more easily enter the blood-current, and are by it more quickly disseminated; thus phlegmons caused by staphylococci pursue a more acute course both in time and in intensity of disturbance, and the various cases of septicæmia and pyæmia developed in consequence thereof seem to be of a more rapid or overwhelming character. In cultures the staphylococci remain active for a long time; old cultures of them emit a well-marked odor much like that of starch paste, as Krantzfeld has noticed, and this odor can be frequently recognized in old

TABLE I.

Disease.	Number of cases	Staphylococcus pyogenes albus.	Staphylococcus pyogenes aureus.	Staphylococcus citreus.	Staphylococcus cereus albus.	Staphylococcus cereus flavus.	Streptococcus pyogenes.	Bacillus pyogenes fœtidus	Micrococcus tetragenus.	Streptococcus erysipelatosus.	Micrococcus scarlatinæ.	Bacillus scarlatinæ.	Bacillus arborescens.	Micrococcus capsiformans.
Abscesses	18	13	11	2	5	...	2	1	1	...	...	...	...	...
Caries	2	2	1	...	1	...	1	...	...	...	...	...	...	...
Necrosis	2	1	...		1	2	...	...	...	...	...	...	...	...
Ulcers	3	2	...	...	2	...	2	...	...	...	...	...	...	...
Ulcer, syphilitic	1	1	...	...	1	...	1	.	...	...	...	...	...	...
Chancroidal pus	1	...	1	...	...	1	...	...	...	...	...	...	...	...
Pus from bubo	1	1	...	...	...	...	1	...	...	...	...	...	...	...
Discharge from chronic gonorrhœa	1	1	...	1	...	...	...	...	...	...	...	...	...	...
Pustules	2	2	1	...	...	...	...	...	...	...	...	...	...	...
Carbuncle	1	1	...	...	...	...	1	1	...	...	...	...	...	...
Phlegmon	1	1	...	...	...	1	...	...	...	...	...	...	...	...
Cellulitis	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas	2	1	...	1	...	...	...	...	...	2	...	...	...	...
Felon	1	1	1	...	...	...	...	...	...	...	...	...	...	...
Empyema	1	1	...	...	...	1	...	...	...	...	...	...	...	...
Gangrenous phlegmon	1	1	1	...	...	...	1	...	...	...	...	...	..	..
Tetanus	3	3	1	...	1	...	1	...	...	...	...	...	...	...
Pyæmia	1	1	...	...	1	...	...	...	...	...	...	...	...	...
Hypopyon	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Not named	6	...	...	...	...	...	...	...	...	...	..	...	...	...
Total	52	36	17	4	13	5	12	2	1	2	...	...	...	...
Scarlatinal blood	2	...	...	...	...	...	...	...	...	...	1	1	1	1
Cerebro-spinal meningitis (pus)	1	1	...	...	1	...	1	...	...	...	...	...	...	...
Variola (pustule)	1	1	..	...	...	1	1	...	...	...	...	...	...	...
Vaccinia (vesicle)	1	...	...	...	1	...	1	...	...	...	...	...	...	...

TABLE II.

	Staphylococcus pyogenes albus.	Staphylococcus pyogenes aureus.	Staphylococcus cereus albus.	Staphylococcus cereus flavus.	Streptococcus pyogenes.	Bacillus pyogenes fœtidus.	Micrococcus tetragenus.	Bacillus of green pus.	Micrococcus erysipelatosus.	Bacillus of typhoid.	Pneumonia (Friedländer).	Bacillus anthracis.	Yellow sarcina.	Micrococcus prodigiosus.
Carbolic acid, 1 : 40	No growth.	No growth.	No growth.	No growth.	No growth.	No growth.	.....	No growth.	.....	No growth.	No growth.	No growth	No growth.	.....
Iodoform, 1 : 100	Good.	Good.	.....	.....	Good.	Good.	.....	Good.	Good	Good.	.....	Good.	Good	Good.
Iodine, 1 : 500	No growth.	No growth.	Good	No growth.	Moderately good.	Moderately good.	.....	"	.....	.....	No growth.	No growth	"	.....
Naphthalin, 1 : 100	Good.	Good.	"	.....	.....	Good.	Good.	"	Good.	Good.	Good.	Good.	"	Good.
Hydronaphthol, 1 : 100	No growth.	No growth.	No growth.	No growth.	No growth.	No growth.	No growth.	No growth.	No growth	No growth.	No growth.	No growth.	.....	No growth.
Hydronaphthol, 1 : 400	"	"	"	"	"	"	.....	"	"	"	"	"	No growth	.....
Resorcine, 1 : 200	"	Slight growth.	"	.....	"	"	.....	Very slight growth.	.....	"	"	Slight growth.	"	.....
Trichlorphenol, 1 : 100	"	.....	.....	.....	.....	.....	.....	No growth.	No growth	"	"	No growth.	"	No growth.
Creolin, 1 : 200	"	Slight growth.	Good.	No growth.	.....	Good.	.....	Good.	.....	Good.	Good.	"	"	.....
Creolin, 1 : 1000	Good.	"	"	Good.	.....	"	.....	.....	.....	"	"	"	"	.....
Sulpho-carbolate of soda, 1 : 100	"	Good.	"	"	Good.	"	.....	Good	.....	"	"	Good.	Good.	.....
Boric acid, 1 : 100	No growth.	.....	.....	.....	.....	.....	No growth.	No growth.	No growth.	No growth.	No growth	.....	No growth.	No growth.
Oxide of zinc, 1 : 100	.....	Good.	.....	Good.	.....	Good.	.....	Good.	"	Good.	.....	Good.	Good.	Good.
Perchloride of iron, 1 : 1000	Good; dark-brown color deposit	Slight growth.	Good.	.....	Good.	"	.....	Good; black deposit.	Good.	Good; black deposit all along course of needle.	Good.	"	"	.....
Antipyrin, 1 : 100	Good.	Slight, not characteristic growth	"	.....	.....	.....	.....	Good.	.....	No growth	No growth	"	Slight growth.	.....
Antifebrin 1 : 1000	"	.....	.....	.....	.....	.....	No growth.	"	Good.	No growth.	.....	"	.....	Good.
Quinine, 1 : 200	No growth.	No growth	.....	.....	No growth.	No growth	"	Slight growth.	No growth.	"	No growth.	No growth.	No growth	No growth.
Antipyrin, 2 : 1000	Slight growth.	.....	Slight growth.	Slight growth.	.....	"	"	.....	.....	.....	.....	.....	.....	.....

dressings which have become saturated with pus. The streptococcus forms grow more slowly, seem to require more oxygen, and manifest a disposition for the lymphatic vessels rather than for the blood-vessels; it is well known that the streptococcus erysipelatosus is propagated mainly in the lymphatic current.

Phlegmonous inflammations caused by streptococci are either of the nature of true erysipelas, when caused by its specific streptococcus, or take the form of a diffuse cellulitis, in which, if pus form, it does so more slowly. The phlegmons caused by the staphylococcus are usually localized, even if extensive, whereas those in which the streptococcus is found are quite likely to be connected with multiple or somewhat distant abscess formations. For example, in a case of erysipelas or erysipelatoid inflammation of the palm of the hand, we are quite likely to get an abscess in the axillary glands, a thing which would be quite uncommon if the staphylococcus-forms alone were at fault. With regard, however, to their powers of systemic poisoning there is, perhaps, but little difference; both may alike cause septicæmia and pyæmia—through the action of specific phlebitis and the dispersion of septic thrombi, or through a poisoning of the system by ptomaines. Nevertheless, when a systemic infection is caused by streptococci, the abscesses seem to be confined rather to the serous membranes; for example, Heubner's multiple infectious inflammations

of the serous membranes of children, and Volkmann's acute purulent synovitis. When this systemic infection is caused by staphylococcus, we see during the active period of growth—that is, during adolescence, that there is a tendency to inoculation of the pyæmic process in the bone, and then we have clinical manifestations of acute infectious osteomyelitis, whose acuteness and ravages in some cases are well known. One who has seen many of these cases will be quite likely to agree with Krantzfeld and Rodet, that acute infectious osteomyelitis represents a form of non-traumatic pyæmia.

During the past year and a half the writer has, in connection with his former assistant, Dr. Matzinger, carefully investigated the biological character of pus from fifty-two different patients, and presents below a table giving a summary of the results of his examinations. The method has been similar to that generally adopted, a drop of pus being removed on a sterilized needle at the moment of its evacuation, transferred to gelatine or agar, and then carefully developed through successive generations until its bacteria could be identified. Only one opportunity of examining pus from hypopyon presented itself. This has been of especial interest, because it has been stated by some writers that pus, in which bacteria were present, could not disappear spontaneously. In this particular instance the anterior chamber was tapped, and the pus evacuated was examined with the result given below. The anterior chamber, when filled with pus, was not further disturbed and the pus in time disappeared by apparent absorption.

Simultaneously with these experiments another series was carried on to see the inhibitory power of various antiseptic substances, either recent or old. Jellies were prepared containing the percentage or proportion of the drug experimented with, as stated below. The bacteria experimented with were the pyogenic and some of the other specific forms, as well as one or two of the chromogenic. The table presented herewith will show the result obtained after careful exposure and cultivation in the thermostat for a sufficient length of time. It will be observed that iodoform makes a very poor showing when studied in this light, and this leads me to reiterate a statement frequently made in other connections, that oxide of zinc has all the good properties of iodoform and scarcely any of its disadvantages. In every way in which I have tested it, I have found it to yield, experimentally and clinically, just as good, if not better results.

It will be seen also that hydronaphthol and boric acid appear to best advantage under these tests. This also bears out personal experience, since the writer has perhaps never been disappointed in the use of either of these drugs; while for nearly two years he has been using hydronaphthol solutions for every purpose for which he previously used carbolic acid.

It is intended to make a further systematic study of other antiseptics, but it is hoped that these data will have a sufficient value to justify their publication before the list has been completely gone through with.

The results above reported were presented in slightly different form to the American Surgical Association at its meeting in September last.

THE TOE REFLEX.

By WHARTON SINKLER, M.D.,

Attending Physician to the Philadelphia Orthopœdic Hospital and Infirmary for Nervous Diseases, and Neurologist to the Philadelphia Hospital.

About two years ago I showed at the Philadelphia Neurological Society a patient in whom I demonstrated what I called "the great toe reflex." I had seen this phenomenon several times before and have since then studied it more fully.

The "toe reflex" is met with only in cases in which the knee-jerk, ankle-clonus, and other tendon "reflexes" are strongly developed. It is elicited in the following manner: The patient lying on his back with his legs extended, the observer grasps the great toe and flexes it strongly; there immediately follows involuntary flexion of the foot, then flexion of the leg occurs, and lastly, the thigh is flexed on the pelvis. Usually the whole limb returns at once to the position of extension. It seems to make no difference whether the toe be flexed suddenly or gently and gradually: in either case the same series of movements as above described follows. Flexing all of the toes at the same time causes the same result. The order and manner of the act are very much like the result of irritating the sole of the foot —"the plantar reflex."

I have recently studied this reflex in a case in which the question of the influence of pain is removed. The patient is a woman in the nervous wards of the Philadelphia Hospital, who has complete paralysis of motion and sensation below the sixth dorsal vertebra. There is an angular curvature at this vertebra, the result of a fall from a window. Below this point there is no sensation to pin-pricks, nor is there bleeding from the punctures. The knee-jerk is grossly exaggerated, but the ankle-clonus cannot be developed on account of the muscular rigidity. The plantar reflex is excessive on both sides. On flexing the toes, either the great toe alone or all the toes together, the foot is quickly and strongly flexed, then the leg is drawn up, and finally the thigh is flexed on the abdomen. The patient is entirely unconscious of the movement either by reason of pain or from any sense of the leg moving.

In lateral sclerosis, in which the knee-jerk is excessive, and in some cases of old hemiplegia, the "toe

reflex" is generally well marked; but it is most strikingly present in cases of pressure disease of the cord, either from injury of the spine or caries.

I have called this phenomenon a reflex because it has seemed to me like one, but it may in part be explained as the result of a tendon pull. For instance: Flexing the toe pulls on the flexors of the foot, which in turn contract, drawing the foot upward; but the flexion of the leg and thigh are not capable of the same explanation.

The "paradoxical muscular contraction" of Westphal somewhat resembles the toe reflex, but differs from it in many respects. The former is a contraction of a muscle after it has been suddenly relaxed. For example, if the foot is grasped and passively flexed on the leg, the tibialis anticus may contract and keep the foot flexed for some minutes.

MEDICAL PROGRESS.

Creolin-iodoform.—To render iodoform disinfectant and deodorant, JAKSCH, in No. 40 of the *Pharm. Post*, recommends admixture with creolin. One to two per cent. of the latter well rubbed up with iodoform makes a somewhat brownish powder of a mild aromatic odor, soluble in alcohol and in ether; water takes up the creolin, leaving the iodoform undissolved. This combination is applied to wounds, ulcers, abscesses, etc., with results at least not less favorable than from pure iodoform; it would seem as though this preparation would diminish secretion in a greater degree as well as stimulate the granulation process.—*Wiener medizin. Presse*, No. 42, 1888.

Gonorrhœa in the Female.—A useful article on gonorrhœa in the female is published in the current number of the *Lyon Médical*, by M. HORAUD. The remarks are based upon 5090 cases of the disease which had come under the observation of the author. Discussing the microbic origin of the disease, he says that Hallier, of Jena, in 1872, described a micrococcus in the gonorrhœal discharge, and even in the blood of patients who had been attacked with gonorrhœal rheumatism. But the honor belongs to Neisser of discovering, in 1879, the true microbe of gonorrhœa, and of pointing out the method of isolating it, and of proving its connection with the causation of the disease. To this microbe Neisser gave the name of gonococcus, which has since been retained. Every discharge from the urethra, vagina, uterus, anus, or the blood of the menses or the lochia, can occasion urethritis in man, but gonorrhœa only follows when the discharge contains gonococci. The purulent ophthalmia of newborn children is only of a gonorrhœal nature when it is contracted from a mother suffering from gonorrhœa; hence it is to be assumed that it is only in certain cases of ophthalmia neonatorum, in the pus of which gonococci will be found.

The author enters fully into the subject of how to collect pus for examination for the gonococcus from the female generative organs. Urethral gonorrhœa may persist a long time in women—some months, and even years. He has seen patients the pus from whose urethra still contained gonococci at the end of four and ten months, and of two years, without reinfection having taken place to account for the disease. No cases of auricular blenorrhagia, nor of nasal or buccal, had come under his observation. A short time ago, however, he published a note of urethral gonorrhœa in a man which had been contracted during a coitus *ab ore*. The woman from whom the contamination came, and who had lent herself freely to this kind of occupation, submitted to a minute examination, but no buccal lesion was detected, nor were there any traces elsewhere about her of gonorrhœa. The author concluded that the contagion had been derived from the gonococci deposited in the mouth during a previous coitus.

In the treatment of gonorrhœal discharges he speaks highly of nitrate of silver, both in solution and in the solid form. Even weak solutions of the drug of 0.30 of a gramme to 100 grammes of distilled water are successful in reducing old chronic discharges. From comparative trials which he has made of nitrate of silver and of sublimate solutions, both in cases of urethral gonorrhœa and purulent ophthalmia of infants, he is confident that the former drug is in every respect superior, and yields better results.—*Medical Press*, Oct. 31, 1888.

Treatment of Bright's Disease.—Avoid moist climates and sudden changes of temperature. Avoid highly seasoned food and eggs; pursue as far as possible the milk diet; cut off wine, beer, and brandy. SENATOR allows veal and pork, vegetables, fruit, and milk, but prohibits beef. Wine and water for a beverage.

SEMMOLA follows the preceding rules, with the addition of the following to be taken as a drink:

R.—Iodide of potassium	. .	1 part.
Phosphate of sodium	. .	2 parts.
Chloride of sodium	. .	5 "
Water		1000 " —M.

BAMBERGER insists on milk diet exclusively and gives iron:

R.—Sulphate of iron,		
Bicarbonate of sodium,		
Extract of dandelion	. .	āā 5 parts.—M.

Make sixty pills, and give three in the morning and three at night.

He also prescribes quinine obtained from the infusion of Peruvian bark.—*Révue Général de Clinique Thérapeutique.*

The Removal of Warts by Carbolic Acid.—PROF. B. FRÄNKEL, in the *Wiener medizinische Presse*, Oct. 1888, recommends the following method for the removal of warts: The skin surrounding the wart should be covered with cotton, and thus protected. Then, by means of a glass rod, apply the liquid carbolic acid to the wart and allow it to dry. No pain is perceptible. In the course of two or three days a part of the wart will fall off. Renew the application until all has been removed.

Antipyrin as a Uterine Sedative.—WINDELSCHMID (*Allg. med. Ctrl.-Ztg.; Union Méd.*) prescribes enemata of thirty grains of antipyrin before or during menstruation in cases of dysmenorrhœa. In two obstinate cases he has known this treatment to prove particularly satisfac-

tory, three doses being given (at intervals of twelve hours between the first and second, and of twenty-four hours between the second and third). He notes profuse sweating and slight ischuria as among the inconveniences of the method, and adds that it has sometimes been necessary to give a glass of wine or milk to avert imminent collapse.

Rivière (*Gaz. Hebdom. des Sci. Méd. de Bordeaux; Union Méd.*) has found the same drug very efficient in allaying after-pains, in doses of fifteen grains by the mouth. A single dose proved enough in twelve out of twenty-eight cases, and two doses, at an hour's interval, in twenty out of thirty-eight cases. When it fails, he says, retention of the placental débris or the like is to be suspected. He states that the drug is not eliminated by the milk.—*New York Med. Journal*, Nov. 17, 1888.

Antipyrin in Diphtheria.—A case of diphtheria, in a child of five years, is reported as cured by the use of this drug locally. Although the classic treatment had been vigorously followed, and the throat carefully cleansed, the membranes spread and completely covered the pharynx. A solution of antipyrin in water, 10 : 100, was applied, the patient making a perfect recovery.—*Gaz. Hebdomadaire des Sciences Médicales.*

Nephrectomy.—Schmidt, of Cologne, before the Surgical Section of the Sixty-first Congress of Naturalists, clearly and concisely reports Bardenheuer's results with nephrectomy from 1879 to 1888. During a period of time in which the kidney was extirpated thirty-five times, nephrotomy was performed but twice. This is explained by the fact that the radical operation was performed in twenty-three instances for tuberculosis, abscess, pyonephrosis, and pyelitis. Only in four cases was operation indicated by tumors; the kidney was removed in eight for hydronephrosis, cystic kidney, and injury to a ureter during amputation of the uterus. In the operation Schmidt recommends the single or double trap-door flap and packing, with subsequent secondary union. Eight patients died during the first two weeks, two later; in only one death is the operation said to have been responsible—on the other hand, a contracted kidney existed, so that nephrotomy was indicated. In two cases, sepsis, which was present before the operation, caused death, in one collapse; a child of three months died in thirty-six hours with convulsions, another from scarlet fever, one patient from metastatic carcinoma, one from amyloid degeneration. Both nephrotomies (for acute traumatic hydronephrosis and for pyonephrosis) terminated fatally.

In suppuration of the kidney (tuberculosis, abscess of the kidney, and pyonephrosis) there is mostly a typical form of perinephritic abscess forming between the adipose capsule and the kidney, so that the whole tumor assumes the shape of the organ; ulceration, externally, is rare in these cases, whereas the perinephritic abscess in a wider sense, suppuration of the capsule, is more likely to ulcerate through. Schmidt and Bardenheuer consider extirpation indicated in suppuration of the kidney, as this condition is the primary affection and the perinephritic abscess the secondary, and even at the operation it cannot usually be determined whether the abscess is simple or tubercular, or whether several foci of disease are present. Bardenheuer cuts directly through the thickened capsule into the renal tissue and shells out the abscess, permitting the capsule to remain; by this means, on the one hand, infection is more readily prevented, and on the other the firm capsule prevents the walls of the cavity collapsing.

Pyelitis, hydronephrosis, and pyonephrosis have a common etiological relation to permanent or transient, total or partial closure of a ureter. The last condition is often occasioned by parametritis; if indurated masses are present, instead of catheterizing the ureter, this should be treated extraperitoneally. Should a ureter be cut in extirpating the uterus, the corresponding kidney should be removed by the lumbar incision. In the discussion, Sprengel, of Dresden, related that he had recently removed a large hydronephrotic kidney from a child of four months by lumbar incision conjoined with an incision at right angles, extending anteriorly. A cure resulted.

Krönlein objected to indiscriminate extirpation and accorded nephrotomy its proper position.—*Berlin. klin. Wochenschr.*, Oct. 15, 1888.

Expectorant Mixture.—

℞.—Terpine . . . . . 10 grammes.
Glycerin . . . . . 60 "
Dissolve by the aid of gentle heat.

The dose is regulated by the amount of terpine it is desired to give, there being 15 grains of terpine to a spoonful of this mixture. It may be given in any syrup. —*Revue de Thérapeutique*, October, 1888.

Treatment of Sweating of Hands and Feet.—Unna recommends for this affection, when the parts are cold, that before the patient goes to bed he should bathe the affected parts with hot water to which has been added some irritating substance, such as camphor, mustard, or vinegar. Then, after drying, the part should be enveloped in an ointment which will cause hyperæmia, such as one of turpentine and ichthyol, each five parts, to oxide of zinc ointment, ten grammes. In the morning the ointment is to be washed off and the parts are to be rubbed with ice-cold water, the friction being continued till hyperæmia and warmness of the skin are induced; then the skin is to be powdered with a powder containing mustard flour. If the feet are affected, the stockings should be powdered before they are put on. Where the parts are warm, the hot and cold baths are to be omitted and ichthyol is to be used; lukewarm baths in the evening, followed by two and a half per cent. ichthyol ointment, washing off with lukewarm water and ichthyol soap in the morning and leaving on some of the dry soap-suds, is the method of treatment.—*New York Med. Journal*, Nov. 17, 1888.

Glycerin Suppositories.—Boas (*Pharm. Ztg.*, No. 80) recommends hollow suppositories of cocoa butter, to contain five to thirty minims of glycerin. In cases in which glycerin proves the appropriate remedy, fifteen minims suffice to produce a copious evacuation. The indication for the use of glycerin is atony of the large intestine, whereas, in cases of obstipation dependent upon atony of the stomach or upon defective digestion of the small intestine, other laxatives may take the place of glycerin.—*Munchener medicin. Wochenschr.*, Oct. 16, 1888.

A New Antiseptic.—From extensive researches and experiments, Dr. Berens concludes that the fluosilicate of sodium is a better antiseptic than chloride of mercury or phenic acid, for preventing the development of bacteria, and it is also a powerful deodorizer. He uses it in gonorrhœa in a 1 to 2 per cent. solution with a marked amelioration of symptoms in three days' time. The same success attends its employment in catarrhal conjunctivitis and purulent ophthalmia. He recommends its use in leucorrhœa, suppuration of the middle ear, and in mucous fluxes generally.—*Gaz. Hebdomadaire des Sciences Médicale.*

Incompatible Antiseptics.—The *Journal de Médecine de Paris* points out the incompatibility of the following commonly prescribed substances:

Corrosive sublimate and iodine.
Corrosive sublimate and soap.
Phenic acid and iodine.
Phenic acid and permanganate of potassium.
Iodine and soap.
Salicylic acid and soap.
Salicylic acid and permanganate of potassium.
Oil, soap, or glycerin, and permanganate of potassium.

Trentment of Sycosis.—Unna, in the *Monatsschrift für prakt. Dermat.*, No. 11, 1888, gives his plan of treatment of folliculitis barbæ, or non-parasitic sycosis. He regards shaving as a very important part of the treatment. This is to be followed in bad cases by the constant application of his carbolic-mercurial or resorcin-plaster muslin; or, if the patient will submit to a nightly treatment only, a zinc-sulphur salve muslin is to be worn during the night, followed in the morning by epilation of the pustules, washing of the part, and the application of a five per cent. alcoholic solution of resorcin to each affected follicle. The whole series of his "reducing agents," such as sulphur, ichthyol, resorcin, pyrogallol, and chrysarobin, may be used at night in ointments of two to five per cent. strength, or ichthyol may be employed in ten per cent. strength as a fomentation. Mercurial ointment with ten per cent. of carbolic acid and up to one per cent. of sublimate is also useful. If the patient will not allow the beard to be shaved, it will be harder to cure the disease, and we must proceed by the removal of each affected hair, washing out the suppurating hair follicle, and the application to it of a zinc-sulphur or weak resorcin-sublimate salve. Scarification does harm, and general epilation should not be practised. Only the diseased hairs should be plucked out. The rhinitis which is often present should be treated by the nasal douche with a one per cent. solution of ichthyol. For some time after the disease is practically cured the face should be shaved with sublimate soap, each hair that is diseased should be plucked and the follicle touched with an alcoholic solution of resorcin, and every night the face should be anointed with a resorcin or sublimate ointment or paste.—*New York Medical Journal*, Nov. 17, 1888.

Contribution to the Study of the Influence of Antipyretics upon Diabetes.—Dr. Volkoff (*Thèse de Petersburg*, 1888, and *Vratsch*, No. 27, 1888) undertook, in the clinic of Prof. Botkine, a series of experiments upon four diabetic patients, to prove the effect of various antipyretics upon this malady, with the following results:

Antipyrin, administered to these four patients gave excellent results, namely diminution of thirst and of the amount of sugar and urea eliminated—in short, marked improvement.

Acetanilide, given to three patients had no effect whatsoever; as much as sixty grains a day were taken.

Sulphate of thallin, administered to the same patients who were given antipyrin, and in the same doses, diminished the amount of sugar, but for a short time only.

Phenacetine, taken in the same doses of twenty grains, proved ineffective.

Salol, given to one patient in twenty grain doses, three times daily, diminished thirst, and the amount of sugar and urea very perceptibly.

Volkoff ascribes the difference in action of these various preparations, to the difference of the etiological character of this disease. According to his opinion, antipyrin proves only of service when the malady is due to a central nervous lesion. One of the patients on whom antipyrin had acted beneficially, died in his clinic, and the autopsy revealed a brain lesion as the cause of the disease.—*Bulletin Général de Thérapeutique*, Oct. 1888.

Antiseptic Pastilles in Diphtheria.—Vaumond (*Wiener medizin. Presse*, No. 42, 1888) recommends the following as a prophylactic in diphtheria, especially for smaller children who cannot gargle and in whom applications to the pharynx are difficult:

R.—Acid. boric.	20 parts.
Sodii benzoat. . . .	1 part.
Ol. thymi	½ to 1 part.
Sodii biborat. . . .	20 parts.
Acid. citric	12½ "
Ol. limonis . . .	1½ "
Ol. menthæ	½ part.—M.

Each pastille should weigh thirty grains and contain one-third of a grain of boric acid and one-thirtieth each of benzoate of sodium and of oil of thyme. As a solvent and basis, glycerin, water, gum, and sugar are used, and to give the mass consistence some gelatin is added.

Poisoning by Chromate of Lead.—Dr. Berthet read before the Société des Sciences Médicales de Lyon a paper upon the subject of poisoning by chromate of lead. The patient, a seamstress, used for her work yellow cotton; she was taken ill in the latter part of August with the following symptoms: Vomiting, albuminuria, cerebral excitement, etc. Patient died shortly afterward in a comatose condition, having previously suffered repeated epileptic attacks. The autopsy revealed congestion of the various viscera, especially of the lungs and kidneys. Chemical analysis proved a large deposit of lead in the brain.

Dr. Cornevin calls attention to the fact that chromate of lead is often used to color butter.—*Lyon Médical*, Oct. 28, 1888.

For Burns.—

Iodoform	4 parts.
Extract of hemlock . . .	2 "
Phenic acid	1 grain.
Unguent. rosæ	30 parts.—M.

—*L'Union Médicale.*

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SATURDAY, DECEMBER 1, 1888.

CREOLIN IN OBSTETRIC PRACTICE.

THE ideal antiseptic for practical use has yet to be found. An agent potent to destroy the causes and accompaniments of disease and favoring physiological processes is greatly needed. Bichloride of mercury fulfils best of known substances the first indication, but is distinctly noxious to living tissues. Carbolic acid, boracic and salicylic acids, and thymol have points of excellence, but lack the efficiency of mercury in pathological conditions.

Early in the present year creolin attracted the attention of German obstetricians and surgeons, by whom it has been extensively used. The substance, when concentrated, is a brownish-black oily fluid, of tarry odor, and aromatic, burning taste; it is obtained from English pit-coals by distillation. Easily soluble in alcohol, ether, and chloroform, with water it forms a homogeneous, slightly alkaline emulsion: further knowledge regarding its chemical composition is wanting at present.

Experience with intra-uterine injections of bichloride of mercury, in dilute solutions, has led continental obstetricians to regard its use in this manner as distinctly dangerous. In the clinics at Giessen and Prague this use of mercury has been abandoned. Sommer, writing of the experience of the Charité of Berlin, reports a mortality rate from this source sufficiently high to call attention to the fact. Virchow has demonstrated mercurial nephritis in parturient women, and has emphasized the dangers of its use in the anæmic and those in whom the parenchyma of the kidney is unsound. Géhé and Turgard have reported, recently, accidents from intra-uterine douches of mercurial solution. Boxall has called the attention of English obstetricians to the limitations to be observed in the use of mercurial injections. Credé and Winckel, in preparing a text-book for midwives, entrust them with carbolic acid, but not with bichloride of mercury.

A practical comparison of creolin and bichloride of mercury has been recently made by MINOPOULOS, in the Munich Frauen-klinik (*Münchener med. Wochenschrift*, No. 45, 1888). His material was 280 parturitions, equally divided between the two antiseptics. The results were, with bichloride of mercury: two cases of severe septic infection, thirteen cases of mild infection; with creolin, no severe infection, seventeen cases of mild sepsis. It was observed that the larger proportion of cases of mild infection occurred when creolin was used in one-half per cent. solution: this solution is, probably, too weak. A one per cent. solution was found especially useful in cases of fetid lochia, and a two per cent. solution as a stimulant and alterative in vaginal ulcers. These cases included the complications of pregnancy and parturition, and afforded a fair comparison.

Experiments upon bacteria by Esmarch and Eisenberg have shown that creolin, in one per cent. solution, retards the development of bacteria more efficiently than carbolic acid; in five per cent. solution it destroys pathogenic bacteria: creolin soap disinfects the hands more thoroughly than bichloride (1 to 1000) soap. Creolin does not injure the hands, and instruments of those who use it; it is an excellent deodorant. It has shown, up to the present time, no noxious properties, whether used externally or taken into the stomach. It deposits an insoluble tarry residue, when undisturbed for some time, which is the greatest practical objection so far observed to its use. Several preparations of creolin, domestic, English, and French, are available for obstetric practice.

The results obtained in surgery and obstetrics by others who have used creolin, invite the attention of the American profession to this antiseptic, and urge a trial of its virtues.

ADULTERATED AND IMPURE MILK.

The difficulties in the way of protecting the milk-supply of a city from adulteration and sources of

dangerous contamination are by no means trifling. Proper laws and ordinances proscribing adulteration under penalties, and their enforcement by a rigid inspection service may do much to prevent the more common forms of sophistication. But there is a danger, not so easily averted, in the possible contamination of the milk by pathogenic germs accidentally conveyed from different sources at the dairy or directly imparted by sickly cows, such, for example, as suffer from tuberculosis. It is not practicable to supervise continually all the dairies that supply a large city. The rigid enforcement of laws against tuberculosis in cattle will eradicate one source of the evil, but the accidental contamination of milk by disease germs is not so easily guarded against. Close supervision of the dairies would reduce the evil to a minimum, but this is difficult of execution. There is a want of knowledge upon this subject which should be supplied by instructive tracts issued to all those whose business it is to provide and deal in this important article of food.

Too great a risk is assumed in trusting to the honesty and intelligence of the milk purveyor or to the uncertain administration of laws for the protection of the supply. To this confidence many a young life has doubtless been sacrificed. Milk inspection is strongly to be commended, and no effort should be spared to render it as complete as possible; but no matter how satisfactorily conducted, it is the part of prudence to take the precaution of sterilizing all milk by boiling or steaming, a positive safeguard of easy application which physicians should feel it their duty to recommend day by day.

The United States cruiser "Boston" arrived last Saturday in New York Harbor with yellow fever on board. There are three persons sick, one of whom is Surgeon W. I. Simon, who is in a most precarious condition. Four deaths occurred on board during the sail northward from Port au Prince, Hayti. The Boston encountered a four days' gale of wind, and the consequent pitching of the vessel militated greatly against a favorable course in the disease in the cases of Surgeon Simon and of the four enlisted men who died.

The Vienna Medical Society has elected Dr. John S. Billings, of Washington, an honorary member.

Dr. H. D. Schmidt, the distinguished pathologist, who for many years has been connected with the Charity Hospital in New Orleans, died on the 23d ult.

Professors von Bergmann and Gerhardt were recently the recipients of an ovation from the medical students of Berlin, who formed in procession and marched past their residences.

Professor Du Bois-Reymond attained his seventieth birthday a few days ago, and the medical students made preparations to give him an ovation on the morning of the anniversary; but desiring to avoid all personal homage, he passed the day out of Berlin. A large number of messages of congratulation from all parts of Germany were forwarded to him.

Dr. Heinrich von Bamberger died at Vienna on the morning of November 9th, after a short illness. Born at Prague, December 27, 1822, he studied medicine in that city, receiving his degree in 1847. Part of his student-years were passed at the Vienna University, where Skoda and Rokitansky were then teaching. Subsequently he became second-assistant to the Public Hospital at Prague, and during the years 1851–1854 he acted as assistant to Prof. Oppolzer, at Vienna, and in the spring of 1854 was made Professor of Special Pathology and Therapeutics at the University of Würzburg. Here Bamberger developed great literary activity. In 1872, upon the death of his teacher Oppolzer, he was made his successor, in the chair of Special Pathology and Therapeutics at the University of Vienna. His principal works were: his *Treatise upon Diseases of the Heart* (Vienna, 1857); on the *Diseases of the Chylopoietic System*, published in 1855, and a second edition in 1864, which was translated into Dutch and Italian. In his death the Vienna school has lost one of her most distinguished exponents.

REVIEWS.

A Text-book of Pharmacology, Therapeutics, and Materia Medica. By T. Lauder Brunton, M.D., D.Sc., F.R.S. Adapted to the United States Pharmacopœia, by Francis H. Williams, M.D. Third edition. 8vo. pp. 1305. Philadelphia: Lea Brothers & Co., 1888.

Perhaps no book has been presented to the profession which aims and succeeds in giving so much of the three branches of pharmacological lore as does the one before us. From the fact that another edition has already been called for, we may fairly conclude that the book is increasing in popularity on both sides of the Atlantic,

which is not only complimentary to its author, but indicates that the medical profession is beginning to appreciate books which give more than a mere *résumé* of empiricism, and is beginning to understand the value of scientific deductions when made by a writer so thoroughly capable as is Dr. Brunton.

The new edition has been improved in so many ways that we have not space to mention them all in this brief notice. The most important of them, however, is the section on the action of drugs upon the eye. Antipyretics and their modes of action are also more fully considered, and by the use of small type for matters which are practically of little interest to general students, and yet are occasionally wanted for reference, a certain amount of space has been gained. Though the present edition contains 120 pages more than the second, the use of thinner paper has prevented much increase in the bulk of the volume.

We can cordially recommend the book as one of value to the physician who wishes to be brought into intimate touch with the recent advances of scientific therapeutics, and while we think it unfortunate that more of the space is not absorbed by consideration of the direct application of remedies to disease, we cannot but regard it as a work of which the author may be justly proud.

SOCIETY PROCEEDINGS.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, November 2, 1888.

The President, William Gardner, M.D., in the Chair.

Dr. Bell exhibited a case of

EXCISION OF THE KNEE

in a man aged forty-five years, cured in one dressing. The femur was rounded off to fit into a concavity in the tibia, as recommended by Dr. Fenwick, and the bones were held together by two nickel-plated nails. The first dressing was removed in five weeks. The specimen of diseased bone removed from the knee-joint was also presented; this showed large pieces of necrosed bone in several parts of the lower end of the femur.

Dr. Bell also exhibited a patient who had received an injury of the knee which had caused a

SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR.

This had united in a bad position, so that the knee was very much bent inward, and the lower end of the shaft of the femur protruded through the skin. The parts were cut down upon, osteotomy performed, and the leg straightened. The result, as shown to the Society, was an admirable one.

Dr. Shepherd exhibited a patient who had suffered from

COMPOUND FRACTURE OF THE OLECRANON.

The separated fragments of bone were sutured with silk, the result being bony union. The patient, a man aged twenty-five years, whilst working on board a ship, was struck on the elbow of the left arm by the fan of the ventilating apparatus; this split the olecranon process vertically, and opened up the joint. When he came to the hospital the wound was covered with dirt, and on separating the lips of the wound it was seen that the olecranon process was split into two portions longitudinally, and the joint was opened. After cleansing the wound, the separated fragments of bone were brought together with two silk sutures and the wound closed, a small drain being left at the lower end. The dressings of gauze and jute were left on for three weeks, and when removed the wound was perfectly healed and the bone found united. The patient went to work a month after the accident, but for some time the movements of the joint were rather limited. The accident happened in July last. At present he has as good motion in the injured elbow as in the other.

Dr. Stewart exhibited a patient suffering from

PROGRESSIVE HEMIATROPHY OF THE FACE,

and gave the following account of the case: The patient, a boy aged fourteen years, had always been in good general health. No history of any facial atrophy. In those parts of the face innervated by the left trigeminus, especially by its two lower branches, the skin, subcutaneous tissues, the muscles, and the bones of the left side of the face are greatly wasted. The muscles appear to have suffered less than any of the other structures. The left half of the tongue is wasted, but the palatine structures on the same side are as well developed as they are on the right; the left nostril is large on the atrophic side, apparently owing to wasting of the turbinated bones and mucous membrane. The special senses are fully as acute on the left as on the right side. There is no disorder of common sensation, the senses of touch and temperature are equally acute on both sides. Repeated measurements, taken with the differential calorimeter, are negative. The angle of the mouth is slightly drawn to the atrophic (left) side. The electrical reaction to the faradic and galvanic currents is normal. In fact, it takes fewer milliampères to bring about contraction on the atrophic side; this is, no doubt, due to the wasted skin of that side offering less resistance to the passage of the current.

The wasting was first noticed about two years ago. During the first few months it made rapid progress, but during the past year patient says he is not aware of any marked progress. Two years before the commencement of the atrophy the patient had the left half of his face and left ear severely frost-bitten. It was suggested that probably the profound irritation which the sensory nerves sustained as the result of this, had induced changes in the nuclei of their origin.

REVERSION IN A PIGEON WITH TUBERCULOSIS.

Dr. T. W. Mills exhibited specimens from a pigeon the subject of general tuberculosis. He said the specimens were of both physiological and pathological interest. The pigeon was a perfectly white Jacobin, bred by himself from a pair of red birds, and he asked if it was a case of Albinism, a "spert," or an instance of reversion, as understood by Darwin, or what breeders term "throwing back." Albinism is well known among wild animals (rabbits, squirrels, etc.), and "sperts," or the appearance of variations not to be accounted for on any well-recognized principles also occur. Upon the whole, Dr. Mills thought this was a case of reversion. A white cross has

been known to show itself in pigeon-breeding after nine years of careful breeding. The subject had been considered important by Darwin, for it was largely upon the evidences of reversion to forms and markings peculiar to wild species that this naturalist founded his views that our domestic animals were derived from a few wild forms.

The bird shown had died two days previously, after ailing for about three weeks. A post-mortem examination showed that the organs contained tubercles in every stage of development and degeneration. The moulting season is a very trying period for birds. Dr. Mills related an observation he had made to illustrate this; a young cockerel, getting its second feathers, was noticed to be bleeding in the region of the tail. Examination showed that the blood was oozing from the roots of the new feathers. The abundance of blood diverted to the skin, and a corresponding demand for nervous energy in this quarter, explained why other parts should suffer, and illustrated the general views he entertained as to the part played by the nervous system in the vital processes, and the practical importance of maintaining the balance of function so often disregarded both by brain-workers and by muscle-users (athletes). The case seemed to him very clear.

The specimen also illustrated two principles that seemed to hold in regard to tuberculosis among the lower animals: (1) The extreme rapidity of the process; and (2) the extensive character of the lesions. This bird had been ill only three weeks, and was fairly well nourished at death. The tubercles were very widely distributed, the organs inflamed and bound together by recent adhesions. Owing to enlargement of the organs and pressure the apex of the heart was squeezed to such an extent that it must have been functionless, while the immediate cause of death was, in all probability, mechanical interference with the action of the heart.

Dr. Shepherd said he was much interested in the case of reversion exhibited by Dr. Mills, and said these are not at all uncommon in the human family. There is in nearly every person's anatomy some form of reversion to an earlier type. As bearing on these reversions of color, he instanced the occurrence of a red head in a family in which it had not been seen for several generations. He also mentioned a case which had lately come under his observation, viz., that of a cow having two rudimentary metacarpals developed in the fore limb, these being the rudiments of second and fifth toes.

Dr. Smith asked Dr. Mills if such a pigeon as he had shown was fit for food; he stated that no doubt many birds that were offered for sale on the market were subjects of tuberculosis.

Dr. James C. Cameron reported a case of

NERVOUS(?) DIABETES, WITH HIGH TEMPERATURE, IN A PUERPERAL WOMAN.

The patient, aged twenty-two years, multipara, was admitted into the Montreal Maternity, October 10, 1888, in active labor. Her first child was born in May, 1886. During present pregnancy she suffered much from morning sickness, occasional hemorrhages, and painful micturition. Her matrimonial relations had not been happy; her husband left her some time before admission; she was an inmate of the Sheltering Home. She is subject to very violent outbreaks of temper. Labor was short and uneventful, lasting altogether six and a half hours; her convalescence was normal for the first week; about that time she was fretting about something, subsequently it turned out to be an expected letter. On the morning of the eighth day her temperature was 99.4°, and in the evening rose to 100.6°, and the next morning was 102.2°. The urine was examined and showed a trace of sugar. Lactation was well established and was normal; appetite good; tongue clean; lochia normal; and urine not increased in amount. Fehling and Pavy's tests used to detect the sugar. There was no great thirst. At times her temperature would run up to 105°, and as the temperature increased so did the amount of sugar; the temperature seemed to rise with the least excitement, and the pulse was never high, even when the temperature was 105°.

Dr. Cameron went on to say that sugar had been frequently found in the urine of puerperal women during lactation, and M. Blot was the first to claim that its presence is then physiological. He asserted that sugar could be found in half the observed cases of pregnancy; that it begins to appear coincidently with the milk, increases in quantity as the milk increases, and disappears when lactation ends; and that these phenomena are observable in other mammalia. M. Leconte, on the other hand, disputed Blot's conclusions, denied the existence normally of sugar in the urine of nursing women, and said that Blot mistook uric acid for sugar. Beneke and others, however, have confirmed Blot's observations.

Dr. Cameron said that in his case sugar was not found till after lactation had been fully established; it increased as the temperature rose and the milk became scanty, but as the temperature fell the milk again became abundant, and evidently lactation had nothing to do with the appearance of the sugar. That the nervous element had much to do with the production of the sugar, he had no doubt, as when nervous phenomena began sugar increased, and when they disappeared the sugar also disappeared. On the 27th sugar was absent, and the patient was preparing to leave the hospital that day, but when Dr. Cameron made his visit he told her she had better remain a few days longer; she immediately began to cry and fret, and although her temperature did not rise sugar reappeared in the urine.

The reader of the paper said he could quite exclude septic trouble and local mischief, troublesome lactation, sore nipples, constipation, digestive troubles, and other causes which sometimes cause rise of temperature. Attention was directed to a chart which was exhibited, and which showed the peculiar action of the temperature, rising during waking hours and falling during sleep, without corresponding variation in pulse.

That the temperature caused the glycosuria, or the glycosuria the elevation of temperature, was not at all likely, both conditions seemed rather to have been due to some peculiar nervous influence.

Dr. T. Wesley Mills, in speaking of the cases detailed to the Society by Drs. Stewart and Cameron, referred to the views he had recently presented on the relation of the nervous system to the vital processes, at the late meeting of the Canadian Medical Association, at Ottawa, and also at the Washington Congress in September. He thought it would greatly widen our conception, and give truer views both of physiological and path-

ological processes, if vital processes were regarded as a related whole, the parts of which could not be isolated and placed out of relation with the rest. That such had grown up in our midst was the result of book treatment, and had no foundation in nature. What is "nutrition?" Can it be considered apart from secretion, heat-production, etc.? Dr. Mills maintained that it could not without the danger of getting artificial conceptions. Were these trophic nerves? was a question subordinate to: Does the nervous system in mammals regulate the entire metabolism, or only certain phases of it? If it regulates secretion, he did not see, apart even from special evidence, how the conclusion could be avoided, that it regulates heat-production, etc., for these processes are only *phases* of an inseparable whole while life lasts. It would appear that physiologists had substituted their own artificial conceptions for the real state of the case as it exists. In one sense all nerves are trophic. Dr. Cameron's case was a remarkable but not isolated instance of the truth of the view that heat-production is under the influence of the nervous system; and if so, why not the entire metabolism of the body?

If the sugar in the urine in this case was really grape-sugar, it was another evidence for such a general view as he was advocating. The narrow views as to diabetes being due to disorder of the liver only, must be abandoned. We are satisfied with explanations that are so simple and also artificial; we constantly forget how complex the relations among the different parts of the body are.

Dr. Lapthorn Smith said he had seen the temperature rise as high as 103° F. after drinking a cup of hot tea. He had seen the receipt of bad news cause an elevation of temperature.

Dr. Ruttan said that milk-sugar in the urine of nursing women is not uncommon. Lactose will answer to Fehling's test, and only the fermentation test will distinguish between milk-sugar and grape-sugar.

Dr. George Ross said that the striking observations of Dr. Cameron were of the greatest interest; he was not aware of similar ones. Elevation of temperature in connection with nervous causes seems to be true, and the nervous system in the puerperal state is especially liable to disturbances, and also after fevers, such as typhoid; *sudden* elevations of temperature are common during the convalescence from typhoid, and are of no very serious import. This elevation is quite different from the gradual rise which indicates a relapse. The sudden elevations are usually produced by emotional causes.

It is not usual to have high temperature with glycosuria. The fact that the temperature dropped at night and became elevated during the day, was significant of nervous disturbance; also that these symptoms disappeared under bromide of potassium.

Dr. Reed related a case of atrophy of the muscles of one side of the face without atrophy of the other tissues. Glycosuria was caused by the arrest of the flow of milk. He would like to ask if the sugar was estimated from the whole quantity of urine passed. He spoke of a case of very high temperature caused by the shock of a railway accident.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, November 5, 1888.

The President, D. Hayes Agnew, M.D., in the Chair.

UNDESCENDED TESTICLE; PURULENT INFLAMMATION OF OVERLYING GLANDS.

Dr. Thomas G. Morton presented two testicles recently removed. The first was from a patient, aged twenty-four, who had been affected with a hernia into the left scrotum since birth, and the testicle upon the same side had not descended into that pouch at any time that he could remember. He had never worn a truss or received any treatment for either condition, nor had he in any way been troubled thereby until within a few weeks, when inflammation had been set up in the inguinal region apparently without cause, save that he had slightly strained himself some three weeks before. He presented an abscess of the corresponding groin which seemed to have origin in the lymphatic glands of that region which in turn appeared to have had origin in the tearing of an attachment of the undescended testicle at the time of strain, as that injury was said to have marked the onset of his present difficulty.

There was no history of chancre or palpable evidence of its former presence. The testicle could be plainly outlined by carrying a finger along the inguinal canal. I obtained his consent to operation and made an incision over the abscess, drained it of about an ounce of pus, excised the affected glands and then came down upon the testicle lying in the canal but now fused with all the anterior structures by inflammatory products. It was freed from all attachments, a ligature of catgut cast about the cord, and the organ removed. The wound was now thoroughly curetted, washed with powerful sublimate solution, and closely sutured, leaving in a rubber drain. No unfavorable symptoms followed the operation, the drain was removed upon the fifth day, and he is now quite well. The specimen showd itself to be an undeveloped testicle surrounded by a tunica vaginalis altered by inflammatory changes; the testicle itself being about the size of a cherry. The hernial sac was not opened and Dr. Morton thought best not to interfere with the rupture until, perhaps, at a subsequent time.

Dr. Morton also showed a second specimen, illustrating

TUBERCULAR DISEASE OF THE TESTICLE,

that day removed. This one was taken from a colored man, aged thirty-five, at the Pennsylvania Hospital. For the past few months he had suffered with pain in the testicle and cord of the right side, and had twice during that time been operated upon for hydrocele of the corresponding tunica vaginalis. The much enlarged organ and a portion of the cord were removed by the usual method. Upon section both cord and testicle presented typical cheesy deposits, one large central collection and numerous smaller foci.

Wm. B., aged thirty-nine, colored, married, has had syphilis for past seven years. Two years ago he noticed that the left testicle was enlarged and painful. This increased in size until one year ago, when a hydrocele was diagnosticated and tapped, with but little decrease in size of tumor. Pain has been much worse for past three

weeks, and patient has sense of dragging in scrotum. When admitted but a slight amount of fluid could be detected. Dr. Morton opened the scrotum, evacuating an ounce or so of dark fluid; he found the testicle diseased and removed it. Cord much enlarged and many evidences of chronic inflammation present.

CORRESPONDENCE.

INAUGURATION OF THE PASTEUR INSTITUTE.

(*From our Special Correspondent.*)

The inauguration of this institution took place on November 14th, in the presence of the President of the French Republic, who presided, assisted by the Presidents of the Senate and House of Representatives, as well as by the Secretaries of War, of the Interior, of Public Instruction, of Finance, and of Commerce; members of the Academy of Sciences and of Medicine, etc. This solemnity took place in the library hall of the Pasteur Institute, which hall contains six busts in marble of the largest donors to the enterprise—the Emperor of Russia, the Emperor of Brazil, Mme. Boucicaut, Mme. Furtado-Heine, Comte de Lauberpin, and Baron Alphonse de Rothschild.

The first speaker was M. Bertrand, Permanent Secretary of the Academy of Sciences. After remarking that the 14th of November, 1888, would never be forgotten in the history of medicine, he said: "During the past forty years, my dear Pasteur, you have permitted glory to come to you, without moving a step toward it. Amongst so many routes, by which often one reaches for it, you yourself know but one, the route of truth."

M. Bertrand then made a most touching study of the early life of Pasteur, and he recorded how one of their mutual classmates, Verdet, had prognosticated about Pasteur; "Pasteur," said he, "knows not the limits of science—I am afraid that he will work hard in vain—he likes insoluble questions." Could any one have estimated him with more sagacity? "The problems which, for half a century, have occupied your mind continuously, giving you no intellectual rest, are no more insoluble to-day. It is to thank you in the name of humanity, to rejoice ourselves in the name of science, to glorify us all in the name of France, that we are united here to-day."

Professor Grancher was then introduced; his speech, being a *résumé* of the work done by Pasteur since the announcement of the method, we shall give in full:

Mr. President of the Republic and Gentlemen: The communication made by M. Pasteur to the Academy of Sciences on October 26, 1885, in which he announced that young Meister had been successfully inoculated with the antihydrophobic virus, created a deep sensation among the scientific world. It was, indeed, the first direct application to man of a general method of treatment of virulent and contagious diseases, and we can easily understand the enthusiasm and hopes of some, and the scepticism, even the hostility, of others.

After Meister and Jupelle, the wounded came to M. Pasteur and his assistants in such numbers that they had to organize a service accessory to the antihydrophobic treatment: matriculation of patients, dressing of wounds, correspondence, etc., so much so, that the year 1886 was absolutely absorbed by the amount of work required for the vaccination of 2682 persons, French and foreigners, each person receiving on an average from fifteen to twenty inoculations.

At that moment, M. Pasteur felt the imperious necessity of a journal, or official organ of the laboratory, which would publish every month the statistics of his vaccination; unluckily his health, seriously attacked by his fatigues and emotions, obliged him to leave Paris toward the end of the year 1886; and the *Annales de l'Institut Pasteur*, started by M. Duclaux, professor of biological chemistry at the Sorbonne, only appeared in January, 1887.

However, the adversaries of M. Pasteur's method, did not fail to profit by our silence, and as we had a few failures during the year 1886, they easily spread the rumor that our laboratory hid its cadavers, and that our dead were legion. They went even so far as to say that the new method would give hydrophobia instead of curing it.

In the beginning of the year 1887, the Academy of Medicine took up the question, and we were then enabled to combat by facts and numbers these calumnious reports which excited the public mind and frightened our patients. At the same time, the learned societies at Naples, Vienna, and St. Petersburg, took up the discussion of this subject, and the war between the Pasteurians and the anti-Pasteurians was a serious one.

In those scientific discussions in which the attack and the defence were equally vivid, everything has been said for and against the antirabic method of vaccination; its adversaries sustaining that the method is inefficacious and dangerous according to the case presented; its partisans, on the contrary, claiming that antirabic vaccination is devoid of danger and marvellously efficacious.

The battle, which was suspended for several months, was taken up again in July, in the presence of M. Pasteur, who answered his contradictors with his well-known gallantry. It was brought forward by the report of the English Commission which M. Pasteur presented to the Academy. This official commission, composed of the most celebrated scientific men of England, having a young and clever physiologist, Mr. V. Horsley, as reporter, arrived in Paris in a very incredulous spirit. After having made a very serious study of the facts presented, they returned to England and repeated the experiments of M. Pasteur; the experimental control lasted more than one year. The conclusion of the Commission, to the great disappointment of our adversaries, was, textually, that "M. Pasteur had discovered a preventive method of hydrophobia comparable to the one of vaccination against variola."

The discussion at the Academy was ended by the following words of M. Charcot:

"Yes, the inventer of antirabic vaccination can to-day, more than ever, march forward, head erect, and pursue the accomplishment of his glorious task, without allowing himself to turn for one single moment because of the outcries of systematic contradiction or the insidious murmurs of disparagement."

These words were listened to and remembered by all, and the year 1888 has been a pacific one.

Gentlemen, before presenting to you my statistics, I would like to say to you what were the causes, to my

mind, which have brought about such an hostility against antirabic vaccination.

You know that M. Pasteur is an innovator, that his creative imagination, regulated by a strict observation of facts, has overthrown many errors and built up in their place a new science. His discoveries on ferments; on the development of the infinitely small microbes causing contagious diseases, and on the vaccination of these same diseases, have been for biological chemistry, for the veterinary art, and for medicine, not only a regular progress, but a radical revolution.

Well, revolutions, even those imposed by scientific demonstrations, leave behind, wherever they pass, vanquished who do not pardon easily. M. Pasteur has then in the world many adversaries; without counting those Frenchmen at Athens who do not like to see the same man always just and always successful; and, as if his adversaries were not numerous enough, M. Pasteur makes additional ones by the implacable vigor of his dialect and by the absolute form which he sometimes gives to his thought.

This form can be dangerous, especially in medicine, where nothing is absolute, and where exceptions to the rule are always numerous. Well, M. Pasteur, by a habit of mind, neglects willingly these contingent facts, which could not, it is true, prevail against law, but which, when it touches a medication applied to the human species, merits to be counted. He has, then, purely and simply proclaimed the efficacy of his method for the treatment of hydrophobia, without making reserves as to the possibility of partial failures; while, if he had been a physician, he would have instinctively taken this precaution, foreseeing the possibility of failure. He did not do that, and exposed himself to the attacks of rational medicine.

To comprehend the opposition of medicine to the discoveries of M. Pasteur, it suffices to examine the movements which have agitated it for the past fifteen years. We hardly knew that in certain diseases, the blood, the humors of the body, and the tissues were occupied by microörganisms, when M. Pasteur, led by his discoveries of ferments, threw himself into this new path for him and for us. And what discoveries he made one after another! He enlightens us; no, he dazzles our eyes accustomed to the semi-daylight of Hippocratic medicine.

See M. Pasteur in the presence of the microörganism of carbuncle of animals. Not only does he make its biology, not only does he prove to us that it is the unique cause of carbuncle, but he educates, he disciplines this infinitely small entity, and teaches it to serve against itself and to become its proper vaccine virus. The experiment of Pouilly le Fort, which had been prepared for a long time by MM. Pasteur, Chamberland et Roux, is known all over the world.

When M. Pasteur, at the London Congress in 1881, announced his great discovery of the attenuation of virus and the vaccination of chicken cholera and carbuncle, one of the most competent men in bacteriology, M. Koch, is reported to have said: "It is too fine to be true;" and three months later, in the first number of the *Mittheilungen*, of Berlin, M. Koch contradicted Pasteur. Since then, however, he has recognized that attenuation and vaccination are correct facts and of great scientific value; but he still refuses to believe the practical value of these vaccinations, although the vaccine of carbuncle extends in every country where carbuncle exists—in France, Italy, Hungary, Spain, India, and Australia.

What better proof do we need of its practical and scientific value? This opposition did not trouble M. Pasteur, who said to us, "Well, let them not believe in the attenuation of virus and vaccination, we shall have ten years advance on them."

The study of carbuncle is hardly finished, when M. Pasteur begins with hydrophobia. Here, for several years, with the aid of M. Roux, he made experiment after experiment, and arrived at still more surprising results. The microbe of hydrophobia has escaped observation up to date, but it certainly exists. Knowing it only by its effects, M. Pasteur has found the way to utilize it as vaccine. And, moreover, M. Pasteur has proposed vaccination after dog-bite—that is, after infection. Physicians, up to now, have always accepted the dogma that when a virus, whatever it may be, has penetrated the human organism, it is beyond our reach and we must await its results. The resistance of physicians to so much subversive news is then quite comprehensible. To recognize that we have first learned and then taught errors, requires outside of personal and impartial new facts, a certain freedom of mind which is not always found, even in most distinguished men.

M. Pasteur, luckily for him and perhaps even for us, is not a physician. Experimenter, without any preconceived ideas or influence of a special school, he has created by the side of rational medicine, which he ignores, a new medical science which his contradictors themselves ignore. This medicine is founded on the idea that this morbid spontaneity does not exist for infectious diseases, and that the laws of general pathology are common to men and animals. How many physicians, however, have been brought up to believe the contrary. This being the case, how can we be astonished at their opposition and their rebellion? I, for my part, think their scepticism very excusable, as it proceeds from traditional ideas, that is, from the spirit of preservation.

It must not be forgotten, and M. Pasteur does not forget it, that at the critical hour, a great many physicians, men of science whose authority was universally recognized, have helped the right and favorable side of the scales to come down. Of the first rank, Vulpian, who not only had followed Pasteur, but who had pushed him to the antirabic vaccination. Vulpian fought and died on the battlefield defending with a fiery eloquence the new method.

Besides Vulpian, Brouardel, Charcot, Verneuil, Chauveau, and Villemin have honored themselves in sustaining the course of progress and preparing its triumph.

M. Pasteur had then the good fortune to find, even at the hour of defection and weakness, a double fulcrum: on one side the great number of patients who never hesitated; on the other, the encouraging words of our most eminent masters. Many other physcians believed in the scientific faith of M. Pasteur, I cannot name them nor do I know them all; but they kept quiet, and our adversaries made such a noise in the press and academies, that the antirabic vaccination was thought to be a thing of the past—to be dead. The method lives, gentlemen. It is prosperous, for there exist to-day, counting the one in Paris, more than twenty antirabic institutions dissemi-

nated throughout the entire world. There are seven in Russia: in Odessa, St. Petersburg, Moscow, Warsaw, Charkow, Samara, and Tifflis; five in Italy: at Naples, Milan, Turin, Palermo, Bologna, these last two having been recently created and sustained by the King; one in Vienna; one in Barcelona; one in Bucharest; one in Rio de Janeiro; one in Havana; one in Buenos Ayres; finally, in Chicago and Malta two new laboratories are being organized. The Antirabic Institute of Paris is in continuous relation with these laboratories, the chiefs of which have all, but two, come to Paris to study the method of M. Pasteur, to apply it to their patients with its progressive improvements.

From the origin we have classified our patients into three sections A, B, and C. The section A contains all the persons bitten by animals recognized to have been hydrophobic by absolute experimental proof. In section B are inscribed all the persons bitten by animals declared to be hydrophobic by certificates of veterinary surgeons; it is the most crowded section. Finally, section C contains the persons bitten by animals suspected to be hydrophobic. Suspicion here results from the circumstances under which the bite has been given; an unknown dog crosses a village, bites a few children and animals, dogs and sheep, and then disappears. If those persons present themselves at the Laboratory, we inscribe them in section C. This section becomes more and more restricted, for we are very severe in our selections, and I think I can safely state that 98 per cent. of the persons we admit for vaccination have been bitten by mad dogs.

Our *general* statistics comprise these three sections, A, B, and C, united in one section. It is subdivided into a *particular* statistic to each one of the sections A, B, and C, and into a *special* statistic for the bites of the head, face, extremities, and trunk.

The number of persons that were treated in Paris, during the years 1886–7 and the first half of 1888, amount to 5374. In 1886, when we had a great number of foreign patients, we inoculated 2682 persons; 1778 in 1887; and 914 up to July 1, 1888.

The percentage of mortality, counting even the deaths of those that were taken with hydrophobia on the first day after the treatment, is for 1886 1.34 per cent.; in 1887 1.12 per cent.; and in 1888 0.77 per cent.

But it would be right to separate from the table of mortality, the persons who died from hydrophobia within fifteen days that follow the treatment; for vaccination, to be efficacious, must be terminated before the virus of the biting dog has begun incubation in the nerve centres. We know that the virus of common hydrophobia, introduced directly on the surface of a dog's brain, incubates from fifteen to eighteen days before it produces its effects. In patients who die from hydrophobia during the fifteen days that follow the treatment, this last has been useless, it having been applied too late; it has not failed because the condition of its efficacy had not been realized.

In separating those cases from the number named—and no physician will oppose this—the percentage of our deaths, notwithstanding the treatment, comes down for 1886 to 0.93 per cent., for 1887 to 0.67 per cent., and for 1888 to 0.55 per cent.

Our mortality decreases gradually, and this is due to the progressive improvements brought to our first method of treatment. We now make a more energetic, more prolonged, more intense treatment, using M. Pasteur's expression, and the treatment yet remains inoffensive. This different efficacy of the antirabic vaccination, according to the one or the other formula, is the most palpable proof of its therapeutic efficacy. The Russian scientific men who combated the antirabic vaccination in Odessa and at St. Petersburg, took this fact into consideration, when they stopped their opposition, M. Gamaleia having shown to them the two very different tables of mortality, according to the method employed.

At Odessa, the first or simple treatment applied to 136 persons, gave a mortality of 5.88 per cent.; while the *intensive* treatment, applied to 997 persons, has given a mortality of 0.80 per cent.

Dr. Bujwid, Chief of the Laboratory at Warsaw, made similar observations; this gentleman, who is here present to-day, will not contradict me when I say that when he called here to study antirabic vaccination he was very sceptical. A student of Koch, and already a very able bacteriologist, he studied with us several months, then continued in his private laboratory at Warsaw, where he performed antirabic inoculation. M. Bujwid studied the simple treatment, stopping at the solution of spinal cord of six days. 195 persons were vaccinated by this method, with a mortality of 4.1 per cent. On the contrary, the *intensive* treatment applied to patients who had suffered from a really severe and dangerous bite (30 persons had been bitten in the face, and 4 by hydrophobic wolves), gave the most encouraging results. Out of 370 persons vaccinated up to the 1st of September last, not one single case of death occurred; so that M. Bujwid, who was an unbeliever for a long time, has become a most convinced partisan of the method. Our particular statistics for each section, A, B, and C, bring us to the same conclusions. The mortality in section A, which contains persons whose bite has certainly had a virulent character, hardly differs from the mortality of section C, which includes persons bitten by animals which were only suspected of having hydrophobia. For the three years, 1886, '87, and '88, the mortality in section A is 1.36 per cent., counting all deaths; and only 1.09 per cent., counting deaths that have occurred fifteen days after the treatment. In section C this mortality is 1.30 per cent. and 0.54 per cent. This similitude in the rate of death for these two sections apparently very different, proves two things: 1st. That the greatest number of biting animals had been suffering from hydrophobia. 2d. That persons of these two sections (A and C) must be treated with the same severity.

The special statistics for the bites of the face, of the hands, and extremities, prove in their way the efficacy of antirabic vaccination. We know that in old statistics the average mortality for all bites were 10.15 and 20.1 per cent., according to the observer; and that the mortality from bites of the head and face reached up to 80 and 88 per cent. In our statistics, the mortality after bites of the head or face is 3.84 per cent., if we count all deaths; it is really only 1.82 per cent., if we separate the deaths that have occurred within the first fifteen days following the treatment. Hence, in this kind of bite, half of the deaths occur during the first fifteen days that follow the treatment, which is a new proof of their excessive gravity. But this dangerous period passed, the treatment is nearly as efficacious for them as for ordinary

bites. We explain our favorable results in these cases by the very energetic character of the vaccination of persons bitten in the head or face.

The great difference which exists between our statistics of 1.82 per cent. and the number of the classical statistics, 80 to 88 per cent., is so large, that it is really impossible not to admit the favorable influence of the antirabic vaccination.

The foreign statistics are in accordance with ours at St. Petersburg; the laboratory which has been started by His Imperial Highness Prince Alexander of Oldenburg, who keeps it up at his own expense, has vaccinated from July 13, 1886, to September 13, 1888, 484 persons, with an average mortality of 2.68 per cent.

From the explanations given to us by Dr. Kraiouchkine, physician to the antirabic laboratory, it results that his death-rate, somewhat higher than ours, is due to the fact that bites are extremely severe in character in his region.

At Odessa, in the laboratory under the charge of Professor Metschinikoff, Dr. Gamaleia has vaccinated:

In 1886, 324 persons by different simple methods. Death-rate 3.39 per cent.

In 1887, 345 persons by the *intensive* treatment. Mortality 0.58 per cent.

In 1888, 364 persons by the *intensive* treatment. Mortality 0.64 per cent.

During these three years 1135 persons have been treated by the antirabic method, with a mortality of 1.41 per cent.

At Moscow, the Antirabic Institute, founded under the protection of Prince Dolgoroukowa, has vaccinated, in 1886, 107 persons by the simple treatment; death-rate, 8.40 per cent. In 1887, 280 persons by the intensive treatment; death-rate, 1.27 per cent. In 1888, 246 persons by the intensive treatment; death-rate, 1.60 per cent.

In Warsaw, M. Bujwid has inoculated 297 persons by different simple methods. His average mortality has been 3 per cent. 370 persons by the *intensive* method. Not one person has died up to date. (It is sixteen months since he began this intensive treatment, and two months since he made his last inoculation.)

At Samara, Dr. Parchenski has vaccinated 53 persons, 4 having been bitten by wolves. The mortality, which was very high here, 5.67 per cent., is explicable by the fact that the treatment, according to the explanations given us by Dr. Parchenski himself, had not been sufficiently energetic and prolonged.

At Charcow, and probably for the same reasons, but we have not been able to get any clear statement, 233 persons have been vaccinated with a death-rate of 3.80 per cent.

At Milan, Dr. Baratieri has vaccinated 335 persons; 2 died notwithstanding the treatment; death-rate, 0.60 per cent.

At Palermo, Prof. A. Celli had vaccinated from March 1 to September 30, 1888, 109 persons without one case of death.

At Naples, Professor Cantani has been obliged to close his laboratory on account of the financial question, the city authorities having refused to support the laboratory. The laboratory was closed from January to August, 1888. In that city, the adversaries of M. Pasteur were very numerous, and had succeeded, notwithstanding a vote of confidence and encouragement on the part of the Academy, to divide public opinion and set the city authorities against M. Pasteur's method. But during this period of seven months, nine deaths occurred as a result of hydrophobia in Naples, and then the city authorities promised financial help for the opening again of the laboratory; the government of Italy, as well as the province of Naples, has also promised to help the work, and the laboratory has again opened its doors. 246 persons have been vaccinated in Naples, 199 since the day of opening of the laboratory (Sept. 22, 1886) up to January, 1888; and 34 since the reopening. The death-rate after vaccination has been 1.5 per cent.

In Havana, in the Antirabic Institute of Dr. Santos Fernandez, Dr. Tamayo has inoculated 170 persons, of whom 50 were bitten by animals which suffered from undoubted hydrophobia. The mortality was 0.60 per cent.

At Rio de Janeiro, in the vaccinating laboratory due to the initiative of the Emperor of Brazil, Dr. Ferreire dos Santos, has vaccinated 53 persons, with no case of death up to now.

Gentlemen, I cannot overlook the statistics of the district of the Seine (which comprises the city of Paris), which is the object of a yearly special report to the Board of Health. The report of 1887 has been made by Dr. Dujardin-Beaumetz, who has obtained his documents at the Prefecture of Police, and for the vaccinated persons at the laboratory of M. Pasteur. Well, in 1887, the number of persons bitten and vaccinated is 306, out of which two died, death-rate 0.76 per cent.: on the other hand, seven cases of hydrophobia have occurred amongst the 44 persons who have not reported for vaccination, which gives us a death-rate of 15.90 per cent.; a ratio which is accepted by MM. Pasteur and Brouardel as being the average of the death-rate by hydrophobia in Paris before the introduction of vaccination. M. Dujardin-Beaumetz concludes: "I know no evidence more striking of the value of the method of inoculation."

The report of M. Beaumetz contains another conclusion not less interesting—that is, that hydrophobia is a disease that administrative sanitary measures can combat. He recalls the fact that in Germany hydrophobia has nearly disappeared, which is owing to the very intelligent prophylactic measures taken. Hydrophobia is, indeed, never spontaneous, it is always transmissible from one animal to the other, and of all animals the dog is certainly the most susceptible,

The following numbers will indicate what intelligent prophylactic measures might do. In December, 1887, the number of persons bitten by hydrophobic dogs was 32; it came down to 25 in January, 1888; then suddenly went up to 61 in February; 57 in March; 56 in April; 67 in May. At that moment the police authorities formulated an order that any dog found running in the street, without his master, would be seized This order was vigorously enforced, and we find in June only 46 persons bitten; in July 29; in August 19. In September a more liberal order in favor of dogs was emitted, and the number suddenly rose to 38. When we observe this rapidly decreasing rate under sanitary measures, does it not seem certain that with a little more perseverance on the part of the public authorities, and a little good will on the part of the population, we might be able to reduce the number of cases of hydrophobia in France, as in Germany, to almost nothing?

You know, gentlemen, that Pasteur's Institute has been founded not only for the treatment of hydrophobia, but also for the scientific study of the means to combat practically the diseases which affect the human species; diphtheria, typhoid fever, phthisis, etc. The extensive laboratories which will be opened to French and foreign physicians, will be for humanity a source of blessing, and a strong means to diffuse and export French science.

M. Christophe, Governor of the Credit Foncier, then exposed in a very able speech the financial situation of the Institute.

Finally, M. Pasteur's son read the following speech for his father, who was too much impressed by all that had been said to be able to read it himself:

Mr. President of the Republic, and Gentlemen: The one who will write in twenty years from now our contemporary history, and will search amidst the war of political partisans the secret thoughts of France, will be proud to be able to say that in the first rank of its preoccupation, public teaching in every degree has been placed. From the village schools to the laboratories of superior studies, all have been either founded or renewed. Student or professor, every one has taken part in it. The great masters of the university have comprehended that if it was necessary to allow primary and secondary education to flow like large rivers, it was also needful to occupy one's self with the spring, namely, superior studies. They have given to this education its deserved place; such an education can only be reserved for a small number; but from this small number, and its select brains, will depend the prosperity, the glory, and, finally, the superiority of a nation.

This is what will be said, and what will be the honor of those who have originated and seconded this great movement? For myself, gentlemen, if I have had the happiness to be led in some of my researches to the knowledge of certain principles which time has consecrated and rendered fruitful, it is because I have never been refused what was necessary for my work. And the day when I foresaw the future which opened itself before the discovery of the attenuation of virus, I addressed myself directly to my country, that it should permit me, by the force and generosity of public initiative, to construct laboratories which not only would apply themselves to the prophylactic method of hydrophobia, but also to the study of virulent and contagious diseases, on that day France has given our hands full. Collective subscriptions, private liberalities, generous gifts due to fortunes that scatter their favors like the ploughman who sows his wheat; all have contributed, even to the workingman who took from the salary of his daily hard work.

While this French concentration was taking place, three sovereigns gave us an evidence of their effective sympathy. His Majesty, the Sultan of Turkey, desired to be amongst our subscribers; the Emperor of Brazil, this emperor, man of science, inscribed his name with the pleasure of a colleague, said he; and the Czar of Russia saluted the return of the Russian subjects who had been treated by us, by a really imperial gift. To the Russian physicians who will work in our laboratories, and are already present amongst us, I address to the Czar our compliments of respectful gratitude.

How these sums have been centralized at the Credit Foncier de France, and the use made of them, you have just heard from the report made by M. Christophe, but he has not told you with what an attachment he has managed this National property.

Before placing the first stone of this Institution the Committee of Subscription had decided, against my will, that this Institute should bear my name. My objections persist against a title which reserves to a man the homage due to a doctrine. But if I am confused by such an excess of honor, my gratitude will be the more profound and complete. Never has a Frenchman addressing himself to other Frenchmen, been so touched as I am at the present moment.

This great house is, then, an existing fact, and one could say of it that there is not a stone in it which is not the sign of a generous gift. All the virtues have united themselves to elevate this home of work. But, alas! I feel the terrible melancholy of a man entering it "vanquished by years," who has no more around him his masters, not even one of his war companions, Dumas, Bouley, Paul Bert, Vulpian, who have been with you, my dear Grancher, the counsellor of the first hour, the most convinced and most energetic defenders of the method.

However, if I have the sorrow to say: They are no more, after having valiantly taken part in the discussion which never originated with me, but which I had to endure; if I am as sad at their absence as I was the day after their death, I have at least the consolation to think that what we have sustained together will not perish, our scientific faith is shared by contributors and disciples here present.

The department for the treatment of hydrophobia will be under the direction of Professor Grancher, who will be assisted by Drs. Chantemesse, Charrin, and Terrillon. The Secretary of Public Instruction has authorized M. Duclaux, my oldest student and assistant, to-day professor at the Faculty of Science, to deliver his lectures on biological chemistry, which up to now had been given at the Sorbonne, and will be given hereafter in our Institute; he will be chief of the laboratory of general bacteriology. M. Chamberland will direct bacteriology in its relations to hygiene. Dr. Roux will direct the studies of bacteriology applied to medicine, and two Russians, learned men, Drs. Metschinikoff and Gamaleia, will kindly help us in our work, and the domain of morphological bacteriology and comparative bacteriology will belong to them.

You know, gentlemen, the hopes we have in the researches of Dr. Gamaleia. I purposely use the word, *hopes;* for the application of the process to man is far from being done yet; but the greatest difficulties have been left behind.

Constituted, as I have just told you, our Institute will be at the same time a dispensary for the treatment of hydrophobia, a centre of researches for infectious diseases, and a centre of learning for the studies belonging to bacteriology. Only of recent origin, but born already armed, this science has obtained such a force by its recent victories, that it gains all the minds. This enthusiasm, which you have felt from the earliest hour, keep it, my dear assistant, but give it, for an inseparable companion, a severe control. Never advance anything which cannot be proven in a simple and decisive manner. Have the religion of critical spirit. Reduced to itself alone, it is not an originator of ideas, nor a stimulant of great things. Without it everything is incomplete. It always has the

last word. What I ask you now, and what you shall ask at your turn of the disciples you shall form, is that which is most difficult for the inventor. To think that one has found a very important scientific fact, to have the fear to announce it, and to constrain yourself for days, weeks, sometimes even years to combat yourself, to seek to contradict your own experiments, and to proclaim your discovery only when you have spent on your experiments all the contrary hypotheses; yes, this is a hard work. But when, after so many efforts, one has arrived at certainty, one feels one of the greatest joys that a human soul can experience, and the thought that he will contribute to the honor of his country renders this joy still more profound.

If science has no nationality, the man of science must have one, and to it must he report the influence which his works must have in the world.

Should it be allowed to me, Mr. President, to terminate by a philosophical thought, brought on by your presence in this hall of work, I would say that two contrary laws are to-day present, a law of blood and death, which imagining daily new methods of fighting, obliges people to be always prepared for the battlefield; and a law of peace, of work, which thinks of nothing else but to save man from the scourges which daily overpower him.

One hunts for violent conquests, the other for the relief of humanity. This one places a human life above all the victories; the other sacrifices hundreds of thousands of lives for the ambition of one man.

The law of which we are the instruments, even searches in the carnage to heal the bloody evils of this law of war. The dressings inspired by our antiseptic methods can preserve thousands of soldiers. Which one of these two laws will overcome the other. God above knows it. But, what we are able to assure is that French science shall have done its best in following this law of humanity in extending the frontiers of life.

The President of the French Republic then rose, and after having remarked that M. Pasteur had asked honors only for his assistants, he nominated Professor Grancher and Professor Duclaux, officers of the Legion of Honor, and Dr. Chantemesse was created knight of the same order.

THE PASTEUR INSTITUTE

has been erected by a subscription of persons all over the world; the rich as well as the poor workman have contributed to the success of this enterprise, and over five hundred thousand dollars have been collected for that purpose. The building, according to the proper wish of Pasteur, is not attractive by its architecture, but was built with the object of being useful to those who would seek information under its roof, and not for the tourist.

Pasteur's Institute has been divided into six departments, viz.: department for the treatment of hydrophobia; department of general bacteriology; department of medical bacteriology, which will be divided into two sections; first, section on methods, second, section of research; department of morphological bacteriology; department of bacteriology applied to hygiene.

The department of hydrophobia is the most important section, for the present, at least; every day, in the morning, from sixty to eighty persons are inoculated, and in the evening from twenty to thirty; no Sundays are allowed for holidays, and the inoculators are always to be found at their duty.

The chief of the department of hydrophobia is Professor Grancher, of the Paris Faculty of Medicine.

Two physicians assist Professor Grancher; they are Dr. Chantemesse, physician of the Paris Hospital, who has drawn attention, during these past years, especially to his researches on the microbe of typhoid fever, and Dr. Charrin, chief of the General Pathological Laboratory of the Faculty of Medicine. Two surgeons are also attached to the same Institute, Prof. Terrillon, of the Faculty of Paris, and Dr. Drengrueber, surgeon of the Paris Hospital.

Every day, for the use of the department of hydrophobia, about ten rabbits, ten guinea-pigs, and two or three dogs are sacrificed in the preparation of the virus. The way in which the inoculations are made as well as the preparation of the virus, we shall relate, hereafter, in another letter.

Department of General Bacteriology.—This department is devoted to the general study of microbes, pathogenic, and non-pathogenic; the chief of this department will be Prof. Duclaux, one of the first students of Pasteur; he is to-day professor of biological chemistry at the Sorbonne, and his chair is now transferred, by order of the Secretary of Public Instruction, to the Pasteur Institute.

Department of Medical Bacteriology.—This department has been divided into two sections.

1st. Section of Methods. In this section the pathogenic microbes will be especially studied—all those that contribute to the etiology of contagious and virulent diseases, such as tuberculosis, typhoid fever, diphtheria, measles, scarlatina, pneumonia, cholera, etc. The chief of this section will be M. Roux, a well-known student of Pasteur, to whom he has rendered very great services during his studies of hydrophobia.

2d. Section of Research. This second section will be under the direction of M. Gamaleia, of the microbiological laboratory at Odessa, who lately has become well known by his researches on the vaccine of Asiatic cholera; he is of Russian nationality.

The *Department of Morphological Bacteriology*, whose specialty will be the study of the natural history of microbes, is also under the direction of a well-known Russian, M. Metschinikoff, director of the bacteriological institute at Odessa.

The *Department of Bacteriology applied to Hygiene* will be under the direction of M. Chamberland, another well-known student of Pasteur, who took a large part in the researches of his master on the carbuncle vaccinations.

It is hardly necessary to add that the above laboratories are open, free of charge, to all who desire to come to study. Two sorts of laboratories will exist in each of the above departments:

1st. A laboratory of study for the physicians who shall come to acquire a sufficient knowledge of bacteriology, which will enable them to practise their profession more in accordance with the present state of medical science.

2d. A laboratory of research for those who have already a general knowledge of bacteriology.

PARIS, November 16, 1888.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

(*From our Special Correspondent.*)

The Sixteenth Annual Meeting of the American Public Health Association just held at Milwaukee, brought together a large number of representative sanitarians and health officers, to consider some of the most important subjects that can be presented to public and professional attention. While papers and reports on other subjects were not excluded, the Executive Committee had designated as the subjects for discussion and elucidation: I. The Pollution of Streams; II. The Disposal of Refuse Matter of Cities; III. Animal Diseases Dangerous to Man; and IV. Maritime Quarantine and Regulations for the Control of Communicable Diseases,

The first meeting was held on November 20th at Athæneum Hall. The Report of a Committee on the Pollution of Water Supply, by Surgeon Charles Smart, of the Army, as Chairman, well introduced the series of papers and reports to follow. It was an able presentation and summary of the reasons why the pollution of streams and other bodies of water was not consistent with their use for potable water. The report argued against reliance on methods of chemical purification, and while admitting the improvement of sewage by dilution, aëration, etc., it contended that this did not assure a satisfactory purity.

The paper went on to show at length that although aëration doubtless did measurably promote the oxidation of organic matter under such and similar circumstances, yet the very process which, through the production of ammonia, led to its nitrification, was the concomitant, not to say the breeder and nurser, the propagator and multiplier of the various bacteria and bacilli which are known to be the causes of malarial, typhoidal, and other epidemic diseases. And it was furthermore shown that neither the stagnation of "settling basins," as at St. Louis, nor yet the huge filters of Atlanta remedied this, the real evil. For it is neither the stench nor even the discoloration which is the true index of a given water-supply's impotability, from a sanitary standpoint. Homœopathic dilution can get away with the former; alum, iron, lime, and other precipitants can, with filtration, produce water of crystalline purity to the naked eye; but neither method can starve or coagulate the lively bacterium into innocuous desuetude. Dr. Smart, therefore, held with the English authorities: "Rivers which have received sewage, even if that sewage has been 'purified' before its discharge, are not safe sources of potable water."

There was no recognition of the facts shown by Percy Frankland and confirmed by others, as to the rapid elimination of bacteria under methods of chemical purification and aëration. The paper was able and well represented the views of those who take the high, safe ground that all forms of sewage must be excluded from every water supply used for drinking purposes. But it scarcely gave due credit to facts, just as well established, which go to show that where such a perfect supply cannot at once be made available, great benefits can be derived from the intervention of long distances of flow and from artificial methods of aëration and purification. We are, nevertheless, glad to have the perfect ideal held up, since the sin of using bad water is one of the vices of cities. The report was well discussed by Prof. Vaughan, Prof. Rohé, Dr. H. P. Walcott, and others.

The Presidential Address of Dr. C. W. Hewitt, of Minnesota, in the evening, was characteristic, desultory, impulsive, assertive, it was in many respects suggestive and practical. With pointed emphasis, he outlined the details of sanitary administration. Especial stress was laid on the need of daily, practical, and, so to speak, petty activity of health officers, so that by clearing away minor abuses, one by one, and preparing for larger exigencies, panics may be avoided. Practical suggestions were made as to many of these details. As the address of Surgeon Sternberg last year presented the more scientific basis of sanitary work, this address was representative of those who salute themselves as practical, administrative sanitarians, and look with only patronizing consideration upon those who study deeper the problems of life, and yet do not forget to proceed effectively to administrate in accord with both knowledge and experience. Both have their sphere of usefulness and both, in time, come to the point in a working association like this.

The well-known opposition of Dr. Hewitt to the National Board of Health did not prevent him from recognizing the desirability of some restricted form of national health power. He urged "the need of a more intelligent and far-seeing—that is to say, a less red-tapy and offensively centralized—co-operation and independence of local, state, and national health boards; insisting that the first was the integral unit, and that the last should properly be evolved out of the demonstrated and experienced needs of the second. In other words, that the highest efficiency of local boards, rural as well as urban, is of the last consequence, and that the true function of the national board should, on the one hand, be to facilitate and cement the interdependent helpfulness of the state boards among one another; and, secondly, to provide for a thorough extra-national system of sanitary inspection in connection with our consular system.

A paper by Dr. Crosby Gray, Health Officer of Pittsburg, was valuable, because it gave the results of a very careful topographical, chemical, and biological examination into the cause of a six per cent. higher death-rate of the south side of that city. He traced it to the water supply of that part of the city, as drawn from the Monongahela River, which receives a vast amount of pollution. He reckoned the loss to the city during the past year at $480,000, as based on accurate statistics of cases as given.

Dr. H. B. Baker, presented remarks on the classification of diseases, in which he took exception to present methods and thought that if the bacteriologist would present a classification from his stand-point, and so the meteorologist, the chemist, and the etiologist, we would have valuable material for a re-classification.

The paper of Dr. Kilvington, of Minneapolis, was a valuable *résumé* of the experiments thus far had as to burning garbage, excreta, etc., by means of furnaces. The matter was before the Association last year, and many details given as to a score or more of such crematories in England and that of Mann, so successfully used in Montreal. To these he added accounts of the Milwaukee Destructor; the Rider Destructor, of Pittsburg; and the Engel, at Minneapolis, also in use at Des Moines. We have had occasion in the past year to examine the evidence as to the feasibility of this mode of refuse disposal, and feel sure that it will be found available in

many of our cities. The Association made an examination of the one at Milwaukee, which has recently been considerably changed in order to use some more modern improvements devised by Mr. Forrestal. Dr. De Wolf, Health Officer of Chicago, while approving of this method, also drew attention to the Buffalo Distillery Crematory, which extracts lubricating oils in the process of burning, and so in part pays expenses.

As a matter of course, quarantine came in for its full share of attention. Dr. Rauch discussed chiefly land quarantine, and repeated the substance of his essay before the Illinois State Board. He made a practical application of it to yellow fever, and denounced the exclusion of refugees. He did not prove his assertion "that a continuous temperature of not less than 70° F. is necessary for its origin and spread." While it is well recognized that it is a disease of warm climates, it is not safe to assert that persons having contracted the fever cannot have it and be the centres of an epidemic, without a continuous temperature of over 70° F. Even were this so, there is not a city in the Middle States that does not for days reach this and not infrequently in September. There was much of value in the paper after it had been thoroughly sifted by the best authorities in the Southern States who have fought, not at long range, this fearful scourge.

Dr. Rutherford, Health Officer for the State of Texas, and Col. Hadden, of Memphis, ably defended their methods of quarantine, and well disputed the position taken by Dr. Rauch.

An excellent paper was presented by Dr. Jerome Cochrane, the Health Officer of Alabama, from a recent, though oft-repeated, experience. He claimed yellow fever as a communicable disease, requiring most thorough methods of isolation in the hands of a thoroughly equipped local board. He would resort to depopulation and refugee camps only on the careful judgment of the local health authorities, as such removal, although theoretically good, is often impracticable.

Papers of merit were presented by Mr. Payne, of the Signal Service, on "Climatology and Health;" and by Dr. A. W. Bell on "Sanitary and Medical Service on Immigrant Ships."

Dr. D. E. Salmon, of the Bureau of Animal Industry, read a valuable paper on "Tuberculosis," showing that the two chief sources of supply were the floating and dried materials from diseased lungs and the use of the milk and flesh of tuberculous cattle.

A paper by his assistant, Dr. Theobald Smith, of Washington, "On the Origin and Sources of Disease Germs" was a valuable contribution to bacteriology.

The Lomb prize for the best paper on "Five Food Products Illustrated by Practical Receipts" was awarded to Mrs. Mary J. Hinman, now in attendance at the University of Strasburg. Seventy essays were presented.

While there were some local defects of arrangement and the attendance was not so large as at some previous meetings, some valuable papers and discussions were furnished.

The next annual meeting will be held at Brooklyn, N. Y.

Milwaukee, November 23, 1888.

THE CERTIFICATION OF A PATIENT'S DISEASE.

To the Editor of The Medical News,

Sir: A question has recently come before me involving certain relations and rights between doctors and their patients, that I should like to lay before you and your readers for further information, if it should be thought worthy of consideration. I must confess that I feel surprised to find myself in so small a minority.

The Medical Association of the District of Columbia is a voluntary body, composed of all the medical practitioners of the district who are in good standing, and deals with questions of ethics alone. The resolution embodied in the circular quoted below was adopted at a recent meeting by a vote of 21 to 4.

The circular reads as follows (as it is in print and sent to all the members, it is, of course, in no sense a confidential communication):

"My Dear Doctor: At an adjourned meeting of the Medical Association of the District of Columbia, held the evening of the 13th inst., Article XXVII. of the regulations was so amended as to read as follows, viz:

"'Article XXVII.—In certificates on account of illness given to employés in the public offices, or others, respecting absence from official duties, the disease shall not be specified; neither shall the name or nature of the disease be divulged by any written description or statement of its symptoms given to the patient himself, nor by any specification of the disorder, nor by any disclosure which may be construed into an evasion of the meaning of this regulation.'

"I am directed by the Association to forward a printed copy of the above article, as amended, to each member." —Signed by the Secretary.

In considering this article the question is not whether in giving certificates of any kind to a third party, the doctor shall state the nature of the disease under which the patient is suffering; although this question is open to consideration—in cases of life insurance, etc., where the patient himself desires it, or under other peculiar circumstances. A case in point has recently occurred where a patient desired, and deserved, relief from duty on the petit jury; he was given a doctor's certificate that he was suffering from a disease which disabled him from jury duty. As no further particulars regarding the disease were given, he was retained on the jury and, when locked up with his eleven associates in a case requiring long consideration, sent to his physician for a more explicit certificate. In reply, a personal letter was sent to him, stating that he was suffering from a form of *itch* which was contagious.

In considering this article the question is not whether the doctor shall disclose or withhold, under any circumstances, details prejudicial in any way to the patient; but simply as to whether the doctor is not bound, as a business transaction, to give a patient by word of mouth or in writing, such details as the patient may ask for regarding the nature of his disease, to do with as the patient may see fit. If the patient can prove that such a refusal is prejudical to his welfare, pecuniary or otherwise, may the patient not obtain satisfaction by a process of law?

The causes which led to the passage of the article in question have nothing to do with the question involved, but it may be worth while to refer to them. It will be

noticed that the application is made only to public official duties. The government departments have pretty generally adopted a rule requiring the nature of the disease to be stated in all certificates for absence on account of sickness, thus casting discredit on the physician's statement of simple disability, compelling references to morbid conditions which are either not creditable, or, as in the case of women, of whom so many are in these departments, are of a nature not suitable to be made a matter of record or discussion in public offices; or compelling the physician to disregard truthfulness in the interest of his patient, and to make use of a politic evasion—in other words, to lie about it. The latter is evidently distasteful to the members of the Association, so they have made this issue. I sympathize fully with my colleagues, but I do not see how they can maintain the position they take in this Article XXVII.

Yours very truly, L.

Washington, D .C

NEWS ITEMS.

A Long Distance Consultation by Telegraph. — The Canadian Pacific telegraph was last Sunday week brought into service in a way that not only afforded a good illustration of the extent of the system, but furnished a unique example of the possibilities of modern science.

Lord Ennismore, heir to the Earldom of Listowel, is lying at the point of death in the hospital at Victoria, British Columbia, with typhoid fever, accompanied by other complications. A telegraphic circuit was formed from London to Victoria, by the Mackay-Bennett Cable and Canadian Pacific Railway telegraph, and Sir Andrew Clarke, of London, was placed in direct consultation with Dr. Hannington, in Victoria. A conversation lasting three hours, concerning Lord Ennismore's condition, was carried on.

An unbroken circuit was worked from Victoria to the cable office in New York where the telegrams were repeated to London. Replies were received in three and four minutes. Lord Ennismore, though still in a dangerous condition, is reported as somewhat better.

Influenza.—This malady, known in France as the *grippe*, is just now epidemic in London, and possibly elsewhere in the British Isles. It is quite distinct from the ordinary "cold in the head," to which it stands in much the same relation as cholera does to summer diarrhœa. It is not, strictly speaking, infectious, although it occurs in epidemic form. The victims are stricken down simultaneously, often by hundreds and even thousands. The first great epidemic occurred as far back as 1580, and spread all over Europe. Since that time epidemics have broken out at irregular intervals, differing only in extent from their mediæval predecessors.

The most marked feature of this really redoubtable, though not necessarily fatal, malady is the intensity of the nervous phenomena, and the prostration which it leaves behind. It is related that some years since the entire crew of a man-of-war cruising in the Channel were incapacitated within a few hours to such an extent, and with such impartiality, that the vessel had to hoist signals of distress and obtain assistance to navigate it. When it invades a town, the disease does not, as with infectious maladies, start from a limited area, but conquers the whole population at one fell swoop. The rapidity with which it travels is also remarkable. The epidemic of 1847 in one month skipped from Spain to Newfoundland, and from New Zealand to Valparaiso, Syria, Africa, and even to Hong Kong. It usually travels from east to west, but does not appear to obey any general law, and although in some instance outbreaks have seemed to be consequent on sudden changes of temperature, they have supervened in all seasons and in all climates.

Apart from the ordinary symptoms of catarrh, respiration is often extremely embarrassed, and sometimes death results from positive "paralysis of the lungs." This interference with the pulmonary function may perhaps explain the prostration which persists long after the principal symptoms have disappeared, and incapacitates the sufferer from work for a period of time varying from one to three weeks. It is comparatively rare in England in its aggravated form, and therefore often gives rise to unnecessary alarm.—*Medical Press*, October 24, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 20 TO NOVEMBER 26, 1888.

McClellan, Ely, *Major and Surgeon.*—Having reported to the Division Commander, on the 23d inst., as required in par. 15, S. O. No. 261, current series, A. G. O., is assigned to duty as Attending Surgeon at these headquarters, and as examiner of recruits at Chicago, Illinois, from that date.—*Headquarters Division of the Missouri, Chicago, Illinois*, November 24, 1888.

By direction of the Secretary of War, leave of absence for four months is granted Richard C. Newton, *Captain and Assistant Surgeon.*—Par. 16, *S. O. 272, A. G. O., Washington*, November 21, 1888.

By direction of the Secretary of War, the leave of absence granted John Van R. Hoff, *Captain and Assistant Surgeon*, in S. O. No. 134, November 1, 1888, Department of the Missouri, is extended one month.—Par. 3, *S. O. 274, A. G. O., Washington*, November 23, 1888.

By direction of the Secretary of War, the leave of absence granted Marshall W. Wood, *Captain and Assistant Surgeon*, in Special Orders No. 257, November 3, 1888, from this office, is extended ten days.—Par. 12, *S. O. 270, A. G. O., Washington*, November 19, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING NOVEMBER 24, 1888.

Heffinger, A C., *Passed Assistant Surgeon.*—Ordered to the U. S. S. "Kearsarge."

Bryant, Patrick H., *Assistant Surgeon.*—Ordered to the Naval Hospital, Brooklyn, New York.

McMurtrie, Daniel, *Surgeon.*—Ordered to the U. S. Receiving Ship "Vermont."

Drennan, M. C., *Surgeon.*—Detached from the "Vermont," and ordered to the "Atlanta."

Winslow, G. F., *Surgeon.*—Detached from the "Atlanta," and placed on waiting orders.

McClurg, W. A., *Passed Assistant Surgeon.*—Detached from the "Tallapoosa," and ordered to the "Kearsarge."

Von Wedekind, L. L., *Assistant Surgeon.*—Ordered to the "New Hampshire."

Heffinger, A. C., *Passed Assistant Surgeon.*—Detached from the "Kearsarge," and ordered to the "Tallapoosa."

Stephenson, B. F., *Surgeon.*—Detached from the Navy Yard, Boston, and ordered to the "Wabash."

Oberly, A. S., *Medical Director.*—Ordered to the U. S. S. "Richmond."

Jones, W. H., *Surgeon.*—Detached from the U. S. S. "Richmond," and placed on waiting orders.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, DECEMBER 8, 1888. No. 23.

ORIGINAL ARTICLES.

GLYCERINE ENEMATA AND SUPPOSITORIES IN CONSTIPATION: BASED ON A TRIAL OF THEM IN 234 CASES.[1]

BY J. P. CROZER GRIFFITH, M.D.,

ASSISTANT PHYSICIAN TO THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, PATHOLOGIST TO THE PRESBYTERIAN HOSPITAL.

THE treatment of constipation is often one of the most difficult questions which present themselves to the attention of the physician. Undoubtedly hygienic and dietetic measures, or such internal medication as tends eventually to produce natural, regular, and unaided evacuations, form the measures which are most to be sought after. There are, however, cases in which the movement of the bowels is urgently demanded, and no time for any systematic treatment is allowed; and other instances present themselves where, owing to a congenital or acquired utter intractability of the intestines, a palliative treatment, consisting in the periodical artificial production of alvine discharges, is the only course left us.

It is in these two classes that the internal administration of laxative medicine and the employment of rectal injections find their proper sphere. Which of them is to be chosen depends, of course, on the exigencies of the case. Very often, certainly, the enema is greatly to be preferred, since it avoids the general disturbance of the gastro-intestinal tract, and the pain and impaired digestion which may ensue. The employment of large injections of water, with or without soap, turpentine, oil, molasses, etc., is frequently both inconvenient and unpleasant; and it was with considerable pleasure, therefore, that I first noticed the recommendation of glycerine by Anacker.

Further research shows, undoubtedly, that the use of glycerine for this purpose was but an old and largely forgotten custom. I have been unable to discover who first devised this treatment, but I have learned that the late Dr. A. H. Smith, of this city, was constantly in the habit of prescribing injections of it; and his former associate, Dr. H. A. Slocum,[2] still uses it with success. Dr. William Pepper[3] has also prescribed it in numerous instances. Eustace Smith[1] refers to the value of the injection of from 40 to 60 drops of glycerine in the constipation of infants, and calls it "an old-fashioned plan lately revived;" and Cadogan-Masterman,[2] while administering a teaspoonful of glycerine, per rectum, to a case of herniotomy, heard the nurse remark: "That was Mr. Warden's favorite plan; he said it was better than all the pills in the world." And this physician, says the writer, died sixteen years ago. Vámossy[3] searched the German text-books with reference to this matter, but only found that Bernatzik[4] stated that glycerine had been used as a laxative and antiseptic clyster; that Daude[5] had given injections of it as a protective and emollient to the mucous membrane of the rectum in dysentery; and that Vogl[6] recommended it for the same purpose in inflammatory diseases of the rectum.

I find the soothing action of glycerine as a local application in dysentery referred to in the *National Dispensatory*, and the drug is also spoken of as a feeble and uncertain laxative; but neither in this work nor in the *United States Dispensatory* is its rectal administration to aid defecation alluded to, and the text-books on *Therapeutics* by Wood, Ringer, Brunton, and Bartholow are silent on the subject. Nevertheless, in Quain's *Dictionary of Medicine*, Oliver, in the article on "Constipation," recommends the injection of a small quantity of glycerine into the rectum.

The history of the present interest in this matter is as follows: A Dutch proprietary medicine, known as "Oidtmann's Purgatif," patented by Dr. Oidtmann, of Maastricht, had attained surprising repute in Holland and Germany for the treatment of constipation. A small metal syringe, holding about 3 to 5 grammes, accompanied the bottle, which contained a grayish-black, slightly greenish fluid, thicker than water, feeling somewhat oily, and having a strong and peculiar odor, which has been compared to that of mouse urine. What was claimed for the preparation it undoubtedly performed; namely, that when about one-half a teaspoonful of it was introduced into the rectum, there was produced a prompt, easy, complete, and painless evacuation.

[1] Read before the Philadelphia County Medical Society, November 28, 1888.

[2] Personal communication.

[3] Personal communication

[1] Brit. Med. Journ., vol. ii. p. 7, 1888.

[2] Brit. Med. Journ., vol. i. p. 132, 1888.

[3] Wien. med. Presse, No. 48, p. 1641, 1887; Therap. Monatsh., March, 1888.

[4] Arzneiverordnungslehre, vol. ii. p. 196.

[5] Husemann: Arzneimittellehre, vol. i. p. 358. 1874.

[6] Bernatzik-Vogl: Arzneimittellehre, p. 97.

There was no tenesmus, but a slight sense of irritation of the anus remained for about a quarter of an hour after the movement.

How great a renown the "Purgatif" was obtaining was shown by its widespread employment by the laity, and by the fact that even some physicians were prescribing it, while more than one chemical examination of it was made. Analyses by Birnbaum,[1] Mylius,[2] Rupp,[3] Steensma,[4] Anacker,[5] Guldensteenden-Egeling,[6] and that made by the authority of the *Land-Medicinal-Collegium*[7] of Saxony, were published; the researches of Guldensteenden-Egeling being particularly careful and exhaustive. Though these differ considerably as regards the nature of the other ingredients, all but that of Mylius agree in declaring glycerine to be the main constituent. This writer simply confesses his inability to discover of what the medicine is composed.

Whether glycerine was also the *active* ingredient could only be determined by clinical experiment, and Anacker,[8] after a series of trials, found that it was, and that 1½ to 2 grammes of it, introduced into the rectum, acted as quickly and thoroughly as did the "Purgatif." He believes that in this method of employing glycerine we have a valuable addition to our armamentarium, applicable to all cases of constipation except those in which there is ulceration of the rectum. The action of glycerine he considers due to its hygroscopic qualities. By abstracting water from the mucous membrane it produces a hyperæmia of the lower parts of the bowel, and, through the consequent excitation of the nerves, an increased peristaltic action.

A little later than Anacker's paper, and without reference to Oidtmann's Purgatif, a publication of Unger's[9] recommended the employment of glycerine in the form of suppositories with soap and *Rhamnus frangula*; and stated that physicians had given them, as thus prepared by him, with very satisfactory results. In an article[10] appearing nearly a year later he changes the formula considerably, while increasing the glycerine and diminishing the soap, as he says that there is no doubt the former is the active agent. He believes that the glycerine excites the mucous glands to greater secretion, and repudiates the theory of increased reflex peristalsis, as suggested by Anacker.

[1] Pharm. Centralhalle, No. 22, p. 275, 1887.
[2] Ibid., No. 6, p. 73, No. 23, p. 285, 1887.
[3] Ibid., No. 22, p. 275, 1887.
[4] het Maandblad voor Apothekers, April, 1887; Pharm. Centralhalle, No. 28, p. 823, 1887.
[5] Deutsch. med. Wochenschr., No. 37, p. 823, 1887.
[6] het Maandblad voor Apothekers, June, 1887; Pharm. Centralhalle, No. 28, p. 341, 1887.
[7] Münch. med Wochenschr., No. 49, p. 900, 1887; No. 9, p 146, 1888.
[8] Deutsch. med. Wochenschr., No. 37, p. 823, 1887.
[9] Pharm. Centralhalle, No. 42, p. 529, 1887.
[10] Pharm. Centralhalle, No. 16, p. 196, 1888.

Vámossy[1] was induced by the communication of Anacker to administer enemata of glycerine to 150 cases of the most different diseases, varying in age from six to seventy years, all of whom had been constipated for at least two days. A small syringe made for the purpose was employed, and 2 c.cm. (equivalent to 2.5 grammes) of glycerine injected. Evacuation of the bowels followed after one to two minutes as a rule, and the stools were always soft and formed; no case of a fluid stool being witnessed. Only in rare instances, as in obstinate habitual constipation or where cerebral hemorrhage had occurred, was the evacuation delayed for one-half hour. Defecation was painless, and no uncomfortable sensation remained afterward. It was noticed that the greater the fecal mass in the intestine the more energetic and complete the action of the enema seem to be. The author agrees with Anacker as to the *modus operandi* of glycerine in the rectum. Should pain or burning in the rectum be produced by a too powerful action of the glycerine—as he has heard has occurred in delicate individuals in private practice—he advises that the drug be diluted with one-half its volume of water.

Seifert,[2] though bitterly opposed to patented medicines, had Oidtmann's Purgatif so constantly forced on his attention, that he tested its power, and found that it fully met the claims made for it. Having heard of Anacker's discovery of the active constituent, he tried glycerine enemata in 26 cases, besides children, and found that 3.5 c.cm at once produced a copious evacuation, without leaving any disagreeable sensation. In no case did he see the drug lose its effect, though sometimes given regularly for many months.

Boas[3] has likewise used this treatment in a long series of cases with good results. In patients with hemorrhoids, however, the insertion of any syringe may be productive of pain. At the best the use of a syringe is not altogether pleasant, is difficult for the patient himself to employ, and cannot always be prescribed in private practice. The author has accordingly devised another form of administration, and has in 20 cases employed hollow suppositories of cacao-butter, each containing 1 gramme of pure glycerine, this dose being found sufficiently large, and acting in fifteen to twenty minutes. He never found it necessary to use more than one suppository, though there would be no objection to giving two.

Kröll[4] also favors the employment of cacao-butter suppositories containing, at least, 2 grammes of glycerine. The evacuation takes place in five to fifteen

[1] Wien. med. Presse, No. 48, p. 1641, 1887; Therap. Monatsh., No. 40, 1888.
[2] Münch. med Wochenschr., No. 9, p. 146, 1888.
[3] Deutsch. med. Wochenschr., No. 23, p. 469, 1888.
[4] Therap. Monatshefte, p. 506, November, 1888.

minutes. He has used them in 50 cases, and with only 1 failure. While he has often seen glycerine injections produce an unpleasant sensation in the rectum, he has never known the suppositories to have this effect. He considers glycerine especially adapted to cases of constipation from insufficient peristalsis of the large intestine, caused by congestion of the portal system, or occurring in those leading sedentary lives or confined to bed. The treatment does not lose its effect by repetition.

Gerstacker[1] took careful notice of 55 cases in which he employed enemata of about 2 grammes of glycerine. The results were very satisfactory, defecation taking place shortly after the injection. The average time required was eight and one-half minutes, the shortest two minutes, and the longest six hours. Usually there was but one stool, and this soft; eleven times it was hard, and four times there were repeated evacuations. In no instance was there any unpleasant sensation after the evacuation. The author uses a small metal or glass syringe, to which he attaches a piece of rubber drainage tube one-half metre long. This device, he thinks, removes the objections raised by Boas, since the patient can very conveniently and without assistance give himself the injection while lying on the back.

Schindelka[2] has had very favorable results with glycerine enemata in 100 horses, 5 grammes always producing an evacuation.

While believing that suppositories have a decided advantage over enemata, Dietrich[3] considers those recommended by Boas to have the disadvantages of being too large, and of inserting into the rectum too great a proportion of comparatively inert matter. He therefore describes and offers for sale a suppository composed of ninety parts of glycerine and ten parts of a hard stearine soap; and says that according to the report from various physicians who have tried them in numerous cases, they produce a natural, easy, and prompt action, the bowels being opened within ten minutes.

Novotny[4] has administered enemata of ½ to 1 fluidrachm of glycerine to 200 patients with the most diverse diseases, and in all but three or four a good stool was produced within a few minutes, though in a few cases two to three hours elapsed. There was not a disagreeable symptom in a single instance. In about a third of the cases a second liquid stool followed the first formed one. He has had cases of obstinate constipation yield almost immediately to this treatment, after having withstood the most powerful purgatives.

[1] Therap. Monatshefte, p. 425, September, 1888.

[2] Pharm. Centralhalle, No. 16, p. 176, 1888.

[3] Pharm. Centralhalle, No 37, p. 445, 1888; Apotheker Zeitung, No. 71, 1888; Pharm. Zeit., No. 71, 1888.

[4] Gyógyászat. Quoted in Lancet, i. 944, 1888.

Subbotić,[1] after numerous trials of glycerine by enema, confirms the favorable opinion of others. It was always promptly efficient if the rectum contained feces. When, on the other hand, the rectum was empty, repeated injections failed to induce a passage. He considers that this is entirely in accord with Anacker's explanation, and is a proof that the action of glycerine is confined to the lowest section of the bowel, and that it is unable to stimulate the upper portions to propel the feces downward.

Reisinger[2] reports his experience with 115 rectal injections of glycerine, 101 of which were successful, usually in two to fifteen minutes, though the evacuation was sometimes delayed for one to two hours. The cases were of the most different diseases. The stools varied from the consistence of diarrhœa to quite decided solidity. The only unpleasant secondary effects noted were the complaints of slight burning in the anus in two cases. Post-mortem examinations were later made on five of the cases, but in every instance the mucous membrane of the rectum was found to be destitute of any change which could have been produced by the injections. As regards the manner in which glycerine provokes the evacuations, it is evident it is not through a mechanical irritation, since the injection of an indifferent chemical substance (solution of albumen) had no effect at all. Neither does the author share the views of Anacker, since he found that concentrated solutions of sulphate of sodium introduced into the rectum had no such effect as the glycerine has, though they have the power of abstracting water. It is more probable, therefore, that there exists a direct chemical action of the glycerine on the mucous membrane of the rectum.

Ullmann[3] has made a careful, critical study of the effect of glycerine enemata, and the relation of the successful administrations to the disease, the habits of the patients, etc. In the great majority of 174 cases the stools were hard, and in only seven were they watery. Subsequent constipation was seen in about one-third of the patients. Diarrhœa followed in six patients, all of them suffering from tuberculosis. A slight burning in the anus was not infrequent after defecation, but pain of any moment only occurred in five patients. Like Subbotić, he noted the almost invariable failure of the glycerine in cases in which the rectum was empty, and the feces were contained in the bowel above it; and with him believes that the inverse of peristalsis is limited to the lower section of the large intestine. He agrees with Unger that the evacuation is due to a profuse hypersecretion produced by the glycerine. He recommends the injections when it is desired to

[1] Centralblatt f. Gynäk., No. 27, 1888.

[2] Prager med. Wochenschr., 209, May 30, 1888.

[3] Centralbl. f. d. gesammt. Therap., Aug. 1888.

empty the rectum quickly, or when general peristalsis is to be avoided. Their habitual use is improper, as there may be danger of causing inflammation. The amount used was 3 to 6 grammes, and the evacuation generally followed in three to fifteen minutes.

From England comes the report of a trial of glycerine by J. Althaus,[1] who announces his success with it in a large number of his own cases, while several other physicians have told him of their satisfaction with the plan of treatment. The evacuation of the bowels takes place almost immediately, or within a few minutes, and there is no pain or discomfort, unless it be a little throbbing felt in the rectum for a few moments afterward. M. Prowse[2] states that glycerine is quite effectual when diluted with an equal quantity of water. W. Easby[3] cannot speak too highly of it as a laxative enema, having used it frequently of late, though his first trial of it was about two years ago. He gives one fluidrachm with a little water in a syringe holding about half an ounce. C. J. R. McClean[4] has employed it by enema in a number of cases with very satisfactory results; using a common glass urethral syringe. J. Bunting[5] does not find glycerine diluted with water act nearly so well as when pure. C. Palmer[6] administers it with a syringe in the shape of a small India-rubber ball with a vulcanite nozzle. W. B. Roué[6] describes, with an illustration, a small graduated glass syringe holding 3 drachms, and adapted for glycerine enemata. The vulcanite nozzle is two inches long, and of sufficiently large bore to admit the easy entrance and exit of the glycerine. G. A. Carpenter[7] tabulates the results of 214 injections of 1 to 2 drachms of glycerine in 63 children of from one to eleven years of age. The method was uniformly successful, and in no case did it invariably fail. The enemata are easy of application, prompt in action, and unattended by the slightest discomfort. He considers them superior to the drugs ordinarily employed for constipation.

An American report on the rectal use of glycerine as a laxative is that of E. R. Mayer,[8] who has employed enemata of ½ drachm with very general success, and has also used the drug in hollow suppositories of cacao-butter, or enclosed in gelatine capsules. A slight degree of rectal irritation followed the repeated use of the capsules. In a case of painful hemorrhoids enemata of glycerine not only emptied the bowels more thoroughly than compound licorice powder had done, but appeared to give more relief to the pain than all the local treatment previously employed. The author then reports an interesting case of extreme tympanites in peritonitis unrelieved by injections of soap, water, and turpentine, in which 2 fluidounces of glycerine introduced high into the rectum gave great relief by the discharge of a large amount of flatus within twenty minutes, followed later by a fecal evacuation. Contrary to the views of Subbotić, he believes that glycerine has a local action not only on the lower bowel, but that by its peculiar power of diffusing itself it rapidly spreads past the sigmoid flexure to some of the coils of the small intestine. In this way a large amount of fluid is mingled with the feces, and finally a general peristalsis is produced.

I. N. Love,[1] also, has used glycerine enemata in many cases, and with uniformly satisfactory results; finding it particularly useful in infants and mothers in whom a constipated habit has persisted after the birth of the child. By giving the injection at the same hour every day the unaided regularity of the bowels may be brought about. In a few cases of hemorrhoids and of severe rectal irritation he had better results with glycerine than with the purgatives and sedative ointments previously used.

The marked success met with in the first few cases in which I used this treatment was reported in a brief note[2] published last spring. Since that time the results have continued to be so good, that glycerine enemata or suppositories have largely supplanted other aperient rectal medication in the medical wards under my charge, as well as in other wards of the University Hospital. The collection and preservation of records of cases have been tedious and troublesome, and I am largely indebted in this report to the patient care of Drs. Leidy, Kirby, Wood, and Hay, of the resident medical staff. Up to the time when enumeration had been discontinued there had been 234 cases of constipation, occurring in the most varied medical and surgical diseases, to whom over 530 rectal administrations of glycerine had been given. When enemata were employed the amount used was usually 1 to 2 fluidrachms, though 1 fluidrachm was generally found sufficient. This was sometimes injected pure, sometimes mixed with a small quantity of water; the effect being much the same in either case. In some instances 20 minims (25 grains) of glycerine were enclosed in a gelatine capsule, and inserted into the rectum, and answered well in many cases. A solid suppository, made by incorporating glycerine with paraffine, was devised by Dr. Leidy, and gave satisfaction in some instances, but required to be kept from moisture, and in a cold place. By far the greatest success with suppositories, however, was obtained with those

[1] Brit. Med. Journ., Dec. 24, 1887.
[2] Brit. Med. Journ., i. 449, 1888. [3] Ibid.
[4] Ibid. [5] Brit. Med. Journ., i. 569, 1888.
[6] Ibid. [7] Brit. Med. Journ., i. 1281, 1888.
[8] Lancet, vol. ii. 905, 1888.
[9] Med. News, i. 200, 1888.

[1] Journ. Amer. Med. Assoc., April 14, 1888.
[2] Annual Univ. Med. Sciences, iv. 1887. Article, "Glycerine."

made with glycerine and soap, which I will presently describe.

The results of the glycerine treatment were most encouraging, as there nearly always followed a full, easy, and painless movement within a few minutes after its employment. The average time required after the enemata was probably five to ten minutes, though the effect was sometimes not evident for fifteen to thirty minutes, and in one case was delayed one and a half hours. Very frequently the evacuation was almost immediate. In a case of convalescent typhoid fever, for example, whose constipation, lasting three and a half days, had not been relieved by an injection of warm water, an enema of 1 drachm of glycerine produced such an immediate effect that the nurse had hardly turned away from the bed before the patient called for the bed-pan. The thought naturally arises that such prompt results must certainly be due to a strongly irritating action on the mucous membrane of the intestine. I would, however, call particular attention to the fact that this does not appear to be the case. My experience agrees with that of the writers already quoted, that it is rare that pain in the abdomen or rectum, or other symptom of real irritation precedes the evacuation or remains after it, as is so often the case after stimulating aqueous enemata have been used. In a few cases I have recorded a stinging in the rectum attending the injection, or a burning sensation, lasting a few minutes after the bowels were opened. It was found that this did not occur if the glycerine was mixed with a small quantity of water. In a few other instances there was actual rectal pain, due not so much to the action of the glycerine as to the passage of not sufficiently softened feces.

All that has been said regarding enemata of glycerine applies as well to the effects of suppositories, except that the latter require somewhat longer to operate, owing to the time needed for their solution in the bowel. They are also somewhat less certain in their action, on account of the medicament contained in them. Glycerine usually produces but one stool, and this is soft rather than liquid. It is for this reason that the remedy sometimes fails in obstinate constipation, the very hard scybalous masses not being softened enough. Yet, I am by no means certain that, even in most cases of this kind, soap and water have, as a rule, any superiority, for both the enemata and suppositories of glycerine were often found useful in the enforced constipation following gynecological operations, such as perineorrhaphy, where it was desired that the feces should be soft, and that straining be avoided. There were instances, too, and that not infrequently, in which glycerine produced an easy passage, but in which soap and water either effected no movement at all, or did not soften the scybala sufficiently to prevent painful evacuations. This method of treatment was found particularly valuable in cases in which opium in large doses had been administered during a considerable period. It failed in no such instance, though turpentine with soap and water was often ineffectual. I cannot speak from experience as regards the contra-indication to the use of glycerine in ulceration of the rectum, to which Anacker alludes. The local employment of it in dysentery, already referred to, would indicate that it is not necessarily to be avoided as a laxative when an ulcer exists. I have never seen the drug lose its effect after continued use, and have not found it necessary to increase the dose, nor does there seem to be any tendency to constipation remaining after the treatment is discontinued.

Glycerine is not, of course, an infallible remedy, and, like all other aperients, will sometimes fail utterly, even in cases in which it has been at other times effectual. My experience with it has, however, been sufficiently extended to justify the conclusion that in it we have a safe, prompt, and reliable means of obtaining an evacuation of the bowels; more convenient of employment, and more pleasant to the patient than are large aqueous injections, and certainly superior to them as regards the absence of irritation of the rectum.

Finally, I would again call attention to the administration of the drug in the glycerine and soap suppositories referred to, as an elegant means of exhibiting the remedy in private practice. I have made a somewhat extended trial of these, modelled after those manufactured by Dietrich. Messrs. Henry C. Blair's Sons, apothecaries, of this city, have taken great trouble in perfecting the method of their preparation, and now offer them for sale. 50, 66, and 75 per cent. of glycerine, with soap, was not found reliable. Finally, by using an especially hard castile soap 90 per cent. of glycerine was incorporated in suppositories weighing 52 grains each, and these were efficient in the majority of cases. It is to be remembered that the total amount of glycerine in each (46 grains) is not quite two-thirds of that generally used for an enema (viz., 1 fluidrachm, 75 grains). If, therefore, a case does not easily yield to one of them, there would be no objection to giving two at a time. These suppositories are made after the shape recommended by Dr. Dixon,[1] and have accordingly all the advantages peculiar to this form. They are very hygroscopic, but when wrapped separately in tin-foil keep very well, and I can imagine no more elegant method of producing an intestinal evacuation than by their use. Very neat little suppositories for babies, holding 10 or more grains, are also supplied. Mr. James J. Ottinger, apothecary, of this city, has sent me samples of 90 per cent. glycerine supposi-

[1] Therap. Gaz., April, 1888.

tories made with a dry stearine soap, and now offered for sale. He has succeeded in preparing them in such a way that the covering of tin-foil is dispensed with. They are not very hygroscopic, even on exposure to air for some weeks, and present a handsome appearance. I have not myself had any experience with them. Messrs. Parke, Davis & Co. also manufacture 90 per cent. soap suppositories. samples of which they have sent me. I have not yet had the opportunity of trying them.

Though glycerine suppositories are somewhat less certain than are the enemata, yet they are not only much more convenient for private practice, but, owing to their rather slower action, I found them entirely unproductive of discomfort, even in the occasional instances in which the enemata have caused slight burning. The largest rectal gelatine capsules hold not more than 25 grains; an amount too small to be generally useful. Their action is uncertain, and even when two are given at a time, a movement does not occur for thirty to forty minutes. Another objection is that, if sold already filled, they rapidly soften and allow the glycerine to escape. The hollow cacao-butter suppositories are not to be recommended on account of the size required to hold a sufficient quantity of glycerine, and the large amount of inert matter employed. I cannot, therefore, but consider those made with soap the most eligible form.

123 SOUTH EIGHTEENTH ST., PHILA.
Nov. 28, 1888.

IS THE ELECTRIC LIGHT INJURIOUS TO THE EYES?

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BEFORE proceeding to the direct answer of the question, it may be well to glance at the larger one that refers to the relation of the electric light to general hygiene.[1] Most every one has a general impression that the electric light is much superior to other methods of artificial illumination, so far as concerns our general health and comfort, but few could give a reason for the faith that is in them. They will come out of a theatre, music hall, church, etc., with headaches, lassitude, exhaustion, their bodies bathed in sweat, all resulting in colds, and a multitude of major and minor affections, and never utter a word of protest or complaint against the culpable and parsimonious management that permits the vitiation, poisoning, and superheating of the atmosphere by a thousand gas-jets. It is certainly not too much to urge, as has been done (14), that the matter should be under the control of the law, and that electric lighting is of political importance on a par with the supply of pure water and drainage. The following figures, from a trustworthy source (14), are so eloquent that they need no comment or explanation:

TABLE.

Burnt to give light of 12 candles equal to 120 grains per hour.	Cubic feet of oxygen consumed.	Cubic feet of air consumed.	Cubic feet of CO_2 produced.	Cubic feet of air vitiated.	Heat produced in 100 lbs. water raised 10° F.
Cannel gas,	3.30	16.50	2.01	217.50	195.0
Common gas.	5.45	17.25	3.21	348.25	278.6
Sperm oil,	4.75	23.75	3.33	356.75	233.5
Benzole,	4.46	22.30	3.54	376.30	232.6
Paraffin,	6.81	34.05	4.50	484.05	361.9
Camphine,	6.65	33 25	4.77	510.25	325.1
Sperm candles,	7.57	37.85	5.77	614.85	351.7
Wax candles,	8.41	42.05	5 90	632.25	383 1
Stearic candles,	8 82	44.10	6 25	669.10	374.7
Tallow candles,	12.00	60.00	8.73	933.00	505.4
Electric light,	None	None	None	None	13.8

It is thus seen that, as compared with the electric light, gas consumes over seventeen times as much air, vitiates three hundred and fifty times as much, and then, adding insult to injury, gas heats the foul residue twenty times as much as the electric light would do.[1]

In a recent address before the British Association,[2] Mr. Preece shows that gas absorbs 68 watts, whilst electricity (arc) absorbs only 5, and the glow light but 3 watts, as the energy required to produce a light of one candle-power. He also shows that in London the cost of producing one candle-light for one thousand hours is, for gas, 30 cents; oil, 16 cents; electricity (glow), 18 cents; and arc, 3 cents.

There is, therefore, no excuse for longer delay in introducing this superior form of illumination into public meeting places. The long-suffering public should arouse their masters to a knowledge of their duty in this respect. The latter have no longer even the excuse of financial expense.[3]

But there has grown up a somewhat popular notion

[1] For those especially interested in the subject, besides the references given, relating to the relative production of heat, carbon dioxide, and other combustion-products, and their influence upon health, the following may be of service: Cohn, Untersuchungen ueber Tages und Gas-Beleuchtung, Berl. klin. Woch., 1885. Cohn, Ueber den Beleuchtungswerth der Lampenglocken, Wiesbaden, 1885. Cohn, Studien, etc., Vierteljahresschrift f. öff. Gesund., Bd. xv. Heft 4. Pettenkofer, Archiv f. Hygiene, Band 1, p. 210. Reuk, Centralblatt f. Electrotechnik, 1885, p. 210.

[1] From experiments made in the hall of the Birmingham Festival (14) it was shown that when gas was used the temperature near the ceiling rose from 60 to 100 degrees after three hours' lighting. This was equal to adding 4230 persons to the full audience of 3100. The vitiation of the air was equal to that produced by 3600 additional persons. When electricity was used the temperature rose only 1½ degrees in seven hours, and the air was, of course, not vitated at all.

[2] See Science, Sept. 28, 1888.

[3] As to this aspect of the question see some most interesting and suggestive extracts from Lodge's Modern Views of Electricity, in Science, Sept 28, 1888, p. 153.

that the electric light is hurtful to the eyes, and one finds, even in the literature of the subject, some very absurd prejudices and nonsensically windy disquisitions concerning the noxious action of the mysterious "chemical rays" said to predominate in the electric light spectrum.

Having had a number of patients who persisted in ascribing certain ill-defined ocular affections to the action of the electric light, I determined to see what evidence existed of the supposed noxious influence. The following is the report of the cases published of ocular troubles resulting from an exposure of the eyes to the electric light, and of the conclusions deducible from their consideration. I may say that, so far as my own experience is concerned, I found in my patients who complained of the electric light, that their ocular troubles could usually and easily be accounted for by some error of refraction, overwork, etc.

The question of nomenclature may be noticed in passing. The term *electric ophthalmia* has been proposed and used of the ocular affections to be described. But the popular use of the word ophthalmia confines it almost exclusively to conjunctival troubles, whilst if not others, there are evidently retinal lesions in these cases. Moreover, there is no sense in the term electric ophthalmia. Electric light ophthalmia would be less criticisable, though still very objectionable. Electric sunstroke, electric light sunstroke, etc., are highly ridiculous in themselves, besides importing into the agency the element of heat, as certainly present in sunstroke, as it is certainly absent in the ocular injuries of the electric light. We, therefore, must use some circumlocution to describe these cases.

I proceed at once to give a condensed *résumé* of the cases so far reported in which the electric light was the cause of ocular troubles. They number twenty three, though several cases are evidently included in Defontaine's account.

1. Terrier (26)[1] cites a letter of Professor Gariel stating that Foucault, in 1843, was attacked with a severe ophthalmia, due, according to his own belief, to the electric light. No particulars are given.

2 and 3. Two chemists, according to Professor Charcot (2), following some experiments in fusing certain substances with a 120 cell Bunsen battery, were seized during the night with pains in the eyes, luminous sensations, and erythema or "electric sunstroke of the face." The ocular troubles were less severe than the cutaneous erythema. There was desquamation of the affected skin in four days. Charcot attributed the injury to the chemical rays, and recommended spectacles of uranium, which substance retains a large proportion of these rays.

4. Little (12) reports the case of a gentleman, who in experimenting in a laboratory, with the electric light, neglected upon one occasion to protect his eyes with his dark glasses. His right eye was exposed to the light. He was blind for a few minutes, and for several days thereafter he had great photophobia and headache. Two months after this accident the physician was consulted on account of dimness of vision and dark spots before the right eye, whose acuteness was $\frac{20}{L}$. Ophthalmoscopic examination showed the optic nerve and adjacent retina affected. Tinted glasses and rest were ordered. No subsequent history.

5 and 6. A case is reported by Rockliff (9) of a workman whose duty it was to adjust the carbon points of a 3000 candle Siemen's light. He used no protecting spectacles, and was for some moments "seized with paralysis of the retina." He had often been troubled with lachrymation, photophobia, pains, and swollen eyelids. These he treated himself by the application of cold compresses. Once, however, this was insufficient, and the distress and swelling of the lids increased. The eyes were hot, red, and the swelling and injection extended to the forehead. The pains were intense within and about the globes. The conjunctivæ were scarlet, the photophobia and lachrymation excessive. The cornea was not affected. The symptoms disappeared in forty-eight hours under lead lotions and systemic purgation. His assistant was also, but less severely, attacked with conjunctivitis, etc.

7. Emrys-Jones (11) reports the case of a patient, who, in making some experiments, had to approach within a few inches of an arc lamp, thus exposing his unprotected eyes for some twenty minutes to the light. There followed a dazzling sensation, and colored circles seemed to surround the street lamps. Early the next morning there was great pain in the eyes, and a great flow of tears. The photophobia and conjunctivitis continued until the subsequent day, when complete relief is said to have followed the instillation of atropine.

8. In a second case of Emrys-Jones (11) the patient seems to have experimented with the electric light, frequently looking at it through a narrow opening between his fingers, though often neglecting even this precaution. With a light of a 2000 candle-power the consequences were only temporary, when viewed from a distance of a dozen feet, and when the gaze was not continuous. If the eyes were not protected by smoked glasses, and were brought within eighteen or twenty-four inches of the arc, the duration of the exposure being one or two minutes, a certain degree of inflammation resulted. A too strong current, producing a violet light, or an insufficient one, producing an orange light, results in less trouble to the eyes than the normal current strength—white, tinted with a sky-blue. Irregularity of the light is more dangerous than when it is steady. The patient reported that his first symptom was a sensation as of a multitude of duplicates of the arc; or, with movements of the eyes, a blinding glare, very confusing for a time, and forming a sort of screen before objects. At first the image was the same color of the arc, but soon this gave place to the complementary color which persisted longer, and which disappeared very slowly. When this had entirely passed away it could be recalled by rapidly opening and closing the eyelids. The severity of the lesion was proportionate to the length of time afterward that the patient could thus reproduce these images. If this were during one

[1] The reference numbers throughout the article refer to those of the bibliography appended.

hour, the patient knew that the inflammatory symptoms would finally ensue, and so he proceeded at once with the remedies that would serve to cut short the attack. The patient had had three separate attacks, accompanied by the usual symptoms of a feeling as of dust in the eyes, lachrymation, intolerable pain, etc. Lotions of sulphate of zinc and opium were used. Patient had not noticed any swelling of the lids.

9. Nodier's case (7) was that of a naval officer whose duty it was to experiment with the electric light. The light was equal to 1600 Carcel jets, surrounded by a glass 40 cm. from the focus, and the officer's eyes were subjected to this light for two hours without protecting spectacles. This was followed soon by headaches and pains in the eyes. The next day the conjunctivæ were red; there were lachrymation, sclerotic hyperæmia, pericorneal circles, myosis, photophobia, muscæ volitantes. These symptoms disappeared slowly in three days. Both eyes were affected alike, and there was no erythema of the skin. The diagnosis was hyperæmia of the retina and conjunctiva. The treatment consisted in zinc collyria, tepid compresses, and rest.

10. In a similar case reported by Nodier (7) the light was only equal to 300 Carcel jets, and the symptoms were light. There were slight cephalalgia, pricking sensations of the eyes, profuse lachrymation. The hyperæmia, pericorneal circle, sclerotic congestion, myosis, and photophobia were only of one eye. The attack passed off in twenty-four hours. The treatment consisted in atropine instillations, belladonna ointment above the orbit, compresses, etc.

11. Dr. Dujardin (26) describes the case of an electrician whose occupation was to charge the accumulators, and who subjected his eyes to the influence of a strong spark. There was photophobia and redness of the bulbar conjunctiva for twenty-four hours.

12. In a communication of Dr. Martin to Dr. Terrier (26) the case of M. L. is described. He had been present at the electric welding. He had worn protecting colored glasses, but in order to see more exactly he had taken them off for a moment. No evil results were felt until night, when he was seized with intense heat of the face and eyes, lachrymation, and such great pain in the eyes that he was unable to open them, and believed himself blind. The pain increased to real torture, the face was injected, the skin thick and rough, and hot. Tears flowed down the cheeks, the lids were swollen so that they could not be opened, the spasmodic closure of the same, and contractures of the facial muscles being increased by the attempts of the physician to examine the eye. By the aid of cocaine, it was found that the white of the eye was but little injected, the cornea intact, the pupil contracted. The palpebral conjunctiva was scarlet, but not swollen, the vision normal. Soothing collyria and cocaine were administered, and the ocular symptoms gradually disappeared in a day or two. The skin of the face was affected more than a week.

13. Sous (23) records the case of M. D., who, though protecting his eyes with dark blue glasses, often looked closely at an incandescent light used to illuminate the work. During the night he was seized with violent pains in the eyes. His eyes and orbits seemed filled with coals of fire. There was intense photophobia, not a ray of light being permitted by the patient. A cherry-laurel water lotion was prescribed, and recovery followed in two days.

14 to 20. Terrier (26), quoting a letter of Dr. Faucher, cites the cases of Messieurs Faucher, Morin, and four assistants, who, from the effects of the intense light in some experiments, had an intense congestion of the conjunctivæ for three days, together with very painful sensations of heat, dryness, and as if foreign bodies were in the eyes. One of the workmen had also an intense "electric sunstroke" of the hands and face.

21. According to Terrier (26), a Mr. N., of Lille, after being present for one and one-half hours during the welding of some metals by electricity, remarked immediately that his eyes were very red. The injection of the eyes and erythema of the face continued that day, and during the evening he noticed malaise, heaviness of the head, and feverishness, with painfulness of the eyes. During the night, there were intolerable pain and intense photophobia, with lachrymation, which continued for a day or two; he was able to return to his work in four days. The treatment consisted in applications of ice and cocaine instillations.

22. Defontaine (22) describes the "electric sunstroke" of the workmen employed in the electric steel-welding works at Creusot. The intensity of the light is equal to about 10,000 Carcel lamps. The men do not approach nearer than fifteen to thirty feet, and though there is at this distance no heat, they begin to feel, within two hours, a burning sensation in the exposed skin of the face and neck, described by one of the men as exactly like that previously experienced by him in a veritable case of sunstroke. The skin is sensitive to the touch, and of a reddish bronze hue. Though the eyes were protected with glasses so dark, that seen through them the disk of the sun was hardly distinguishable, there soon followed a temporary blindness of a few minutes, and for an hour or more thereafter objects seem to be suffused in a decided yellowish saffron hue. The conjunctiva was very hyperæmic, and this lasted for forty-eight hours. There was the extremely painful sensation, as of a foreign body under the lids, and lachrymation was excessive. Cephalalgia and insomnia with slight feverishness were noted. Within the next five days there was desquamation of the entire face in large sheets.

23. Terrier (26), in describing a similar case to the last, notes especially that vascularization of the conjunctiva was particularly noticeable in the part exposed by the opened lids, and when the conjunctiva was covered by the lids there was hardly any injection. It may also be remarked that, unlike all others, he found the pupils dilated. They were little sensitive to light.

If from a review of these cases we try to make up a clinical picture of the disease, we at once strike upon the etiology, and therein lies the greater part of the differences that have arisen in the discussion of the subject. To this *vexata questio* we must direct our attention.

The first fact that strikes our attention is that the subjects were nearly all scientific experimenters, or workmen about the light who were compelled to approach either very near the same or to leave their eyes a long time subject to the influence of the rays. So far as I have found, there is not a single well-authenticated instance of ocular trouble from the use

of the electric light as a simple illuminant. It is a fact well known that we may blind ourselves permanently by staring into the sun, and yet diffused sunlight is, of course, the natural stimulus of the eye. Whatever prejudice may linger in some minds against the electric light properly used as an illuminant may therefore be dismissed as absolutely without clinical proof.

We next notice that the cases cited occurred in those not protecting their eyes in any way, or insufficiently. With this fact we come to the consideration of the real cause of the lesion. It has been ascribed to the supposed excess of chemical (blue, violet, and ultra-violet) rays in the electric light spectrum. Let us see how far this is true.

Rendering the yellow rays equal in the spectra, Meyer (*Centralblatt für Electro-technik*) has analyzed the spectra of the two forms of electric light, with solar light as a term of comparison, with the following results:

	Gas.	Incandescent lamp.	Arc lamp.
Red . . .	4.70	1.48	2.09
Yellow . . .	1.00	1.00	1.00
Green . . .	0.43	0.62	0.99
Blue . . .	0.23	0.21	0 87
Violet . . .	0.15	0.17	1.07

It is thus seen that all three lights are reddish-yellow as compared with the sun, and that even the arc light is poorer in blue rays than sunlight. This, of course, relates to the visible portion of the spectrum. As to the ultra-violet portion, Mengeaud (13) says that M. de Chardonnet photographed the spectrum of an incandescent lamp (like Edison's) and found that it did not exceed that of the visible spectrum. This may have been either because of the absorption of the ultra-violet rays by the crystal globe surrounding the lamp, or because the short rays are not produced. If, therefore, these investigators are to be relied upon, and there seems to be no reason for doubting them, there is absolutely no ground for the great burden of complaint that has been brought against the violet and ultra-violet rays of the electric light. They either do not exist or, if so, they are in less quantity than in sunlight. The recommendations of Javal (6) and Fieuzel (6) to use yellow spectacles to shield the eyes from the baneful effects of the short waves, thus fall flat.[1] Cohn calls attention to the fact that the blue rays are not harmful to the eyes, Graefe and oculists of all times having habitually recommended bluish-tinted glasses.

[1] Another reason urged for the adoption of such lenses is that they obviate the chromatic aberration of the eye, by which, theoretically, the focus of the red rays is behind that of the violet. But Helmholtz could not find that visual acuteness was at all lessened by this chromatism. Javal says it is, and that artificial light is insufficient, widens the pupil, and makes the chromatism of the eye perceptible. He would therefore shorten the spectrum, but not by blue glasses which cut off the red end and thus lessen the amount of light-stimulus; but by yellow glasses, that cut off the blue end. It is a case of hypercriticism and supersubtlety.

The theory of M. de Chardonnet (17) holds that all the ocular media absorb more or less the ultra-violet radiation, and that to this absorptive power is due the fatigue of the eye. He found (18) that the crystalline has especially the function of intercepting the ultra-violet radiation, but this brings doubly into view the absurdity of the theory; there is no question in the reported cases of lenticular trouble; it is chiefly retinal or conjunctival, if not entirely so. Not only are there no ultra-violet rays to absorb, but the body that absorbs them is an insensitive, unaffected organ.

Over-refinement is carried a step further in the theory of Regnault (19), who ascribes the ocular troubles caused by the electric light to the fluorescence developed in the media of the eye by the action of the violet and ultra-violet rays. He showed that the mammalian cornea is manifestly fluorescent, and the crystalline also, and to a high degree; that the phacocine or central portion of the crystalline is not so; that the hyaloid membrane is the only tissue of the vitreous having a weak fluorescence; and that the retinal fluorescence is weaker than that of the crystalline.

I think we may throw out all theories that explain the lesions as due to a greater or less proportion of the waves of the different parts of the spectrum. Since time began our eyes have been accustomed to all colors, and, besides, the waves deemed especially harmful are innocent by comparative non-existence. To what then shall we credit the trouble? I believe it is due simply to the intensity or amount of the stimulus which, from the natural and physiological stimulus of diffused sun or electric-light illumination passes, by closeness or by duration of observation, into pathological irritation and even a quasi-mechanical injury. It is simply a question of degree. From the delicate tint of a cold blue through to the more powerful waves of the red end of the spectrum, up to direct gazing at the electric light or the sun, and to the effect of a sheet of lightning (that has produced blindness) it is only a question of intensity or quantity of the self-same stimulus. A temperature of 98° F. is pleasant to the body, but one of twice that amount coagulates its albumins. There is in Italian a gruesome word, the sad record of a savage age: *abacinare*—to hold a heated glowing vessel close before the eyes until vision is destroyed, or but a shimmer of light is left. The idea was not to burn the eyeballs, but to destroy the retina by the intense stimulus. Czerny[1] focussed direct sunlight upon the retinæ of animals. There followed coagulation of the retinal albumin, destruction of the rods and cones, and severe inflammation of the retina and choroid, ending in atrophy of the retina. When

[1] Sitzungsberichte der Wiener Akadamie der Wissenschaften, Bd. 56, Abth. 2, S. 409.

gaslight was used these results did not take place, but, though tinted glass was interposed, the effects always ensued with sunlight. Deutschmann[1] showed essentially the same fact by inserting in the path of the sun's rays a glass tube filled with cold water, some 20 cm. long. The destruction of the retina was the same as if the warm rays had not been intercepted. The descriptions of cases of snow-blindness—*e. g.*, those of Graddy[2]—read almost exactly like those I have summarized. The same may be said of those cases of injury from exposure to sunlight such as described by Drs. W. Norton Whitney,[3] Sulzer,[4] Haab,[5] Deutschmann,[6] and others who describe retinal injuries from the observations of eclipses, etc., despite the use of protective blue glasses. There is central scotoma, reduced vision, loss of color sensation, photophobia, etc. In Whitney's cases there was a pearl-white spot at the macula, as if its albumin had been coagulated. Briere[7] had a case of complete blindness from the reflex of a lightning-flash from the white street, and Little (12) had a case of blepharospasm lasting thirteen days, from a lightning-stroke.

It is to be noted that the effects of the electric light are not because it is more intense than sunlight. It is, in fact, far less intense than sunlight. Multitudes of people impelled by curiosity have gazed at the ordinary arc or glow lights without a single case of ocular injury. Hardly one would be able to look into the sun in the same way. All the cases of ocular injury from the electric light are due to gazing at it at very short range and for a long time. Compared to daylight, the electric light lessens colors, for red, blue and yellow, one to two, three, and, for red, even four. In the establishments for electric welding the great intensity or number of the light waves is so high that not only are the delicate retina and conjunctiva injured, but the skin wherever exposed is inflamed and desquamates from a short exposure to the near and powerful stimulus exactly as it would if exposed to the sun's rays upon a hot summer day.

Another proof that the injury is due, not to a different proportion of the long or short waves, but simply to their great quantity, lies in the fact that the ocular trouble is exactly proportional to the intensity of the light, or, what amounts to the same thing, the nearness of one's approach or duration of exposure. This is particularly clear in case No. 8. I have elsewhere[8] endeavored to show that the retinal intermediate of light and color sensation is a molecular vibration responding, and proportional to the wave-length and number of the received ether-waves—or, in other words, that the retinal function is a delicate and high differentiation of the temperature-sense. Now, just as a certain degree of heat or molecular vibration is grateful and necessary to the general nerve end-organs, but a much higher degree is destructive of them, so it is the same with the retina. Every fact adduced above, together with the symptomatology and pathology of sun-blindness, snow-blindness, etc., goes to show the truth of this conception. Excess of physiological activity everywhere runs into pathological activity. The light of the ordinary glow or arc lamps when diffused, or not looked at directly, is not injurious to the eyes. Neither is it injurious if looked at from a distance (several feet, or thirty, according to its intensity), unless the gaze be fixed upon it for a length of time that more than compensates for the distance. The injury is proportional to the intensity of the light, to its distance, and the duration of the exposure. It may be said that there is absolutely no danger from the use of the diffused light as an illuminant. They who have the care of these lights—scientific experimenters and workmen in the welding-works—such must protect their eyes with colored glasses, whose function is simply to arrest the great part of the numbers of the light-waves, so that the intensity of their action is reduced. It matters not whether the long or the short waves are intercepted,[1] so enough of them are cut off to reduce the general average to a standard approaching that of diffused daylight, the normal stimulus of the eye. The indication is for a London smoked or dark-blue tinted lens, the depth of whose shade should be proportional to the nearness of approach and the intensity of the light.

As to the symptomatology of the ocular affection, there is the greatest unanimity in all the cases. If the light has been very intense and the exposure at short range, there will probably be a temporary "paralysis of the retina," lasting one minute or several, and accompanied by blepharospasm. There may be a blinding glare, positive and negative after-images, central scotomata, or other chromatic sensations, as of colored circles about objects, etc. In any case, what may be called the typical symptoms appear in from two to twenty-four hours after the exposure. There is then always photophobia (with blepharospasm) pronounced and intense. Lachrymation is always present, and the third unfailing symptom is pain in the eyes, which, probably, also extends to the head. The intolerable ocular pains are usually accompanied by a feeling as of particles of sand under the lids, and these particles seem large, recognizably distinct, and unendurable. The

[1] V. Graefe's Archiv, Bd. 28, Abth. 3, S. 241.
[2] Amer. Journ. Med. Sci., Rep. on Oph., 1887.
[3] Annual of Un. Med. Sci., 1887, vol. iii. p. 91.
[4] Klin. Monatsbl. f. Aug., April, 1883.
[5] Correspondenzbl. f. Schweiz. Aerzte, 1882, p. 383.
[6] Graefe's Archiv, Bd. 28, Abth. 3, S. 241.
[7] Gaz. des Hôp., 1876, 333.
[8] Amer. Journ. Oph., July, 1886.

[1] See case 8.

conjunctiva, especially when exposed to the direct action of the light, is congested, usually intensely so; there is sclerotic hyperæmia, pericorneal circles, and myosis.[1] During the attack ophthalmoscopic examination is scarcely possible, and would probably show nothing of importance, since the symptoms are almost entirely those of a reflex neurosis, due to conjunctival irritation. The attack lasts from one to three, or even more, days, and may be cut short by the rational indicated treatment.

The prognosis is good; no case of permanent injury having been so far reported.

As to the treatment, a mydriatic should be used to set at rest the ciliary muscle, and cocaine to relieve the pain, the irritation, and reflex spasms of the muscles. Astringent collyria are wholly useless, and might prove injurious. Cold compresses have been usually employed, but I should use hot ones if a case were presented to me.

As regards the pathology of the affection, Nodier (7) ascribes the conjunctival hyperæmia to the retinal lesion by reflex action, that produces spasmodic contraction of the muscular fibres of the iris and ciliary body, whence results compression of the irido-choroidal venous trunks with venous stasis, or reflux, of these and of the conjunctival vessels. Nodier had not had any such experiences as those described in cases 12, 14, 22, 23, in which the skin of the face, neck, or hands was affected. Case 23 is particularly instructive, as showing that the conjunctiva was injured by the direct action of the light, and only where it was exposed to the same. Heimann[2] thinks the conjunctivitis (*sic*) is due to the pressure of the lids on the eye in the spasmodic action of the orbicularis under intense light. The whole matter seems simple enough and easily explicable. The fact that photophobia, lachrymation, pain, etc., are not symptoms of retinal lesions and inflammations, seems to make Nodier's assumptions purely gratuitous. These symptoms are the infallible results of irritation of the external tissues, the conjunctiva, cornea, etc. This irritation certainly exists in electric light injury: it affects all exposed parts, and is most intimate, penetrating, and severe. It simply results in vaso-motor paralysis by pure reflex action, and there follow as inevitable and necessary consequences the outflow of tears, the vascularization (not conjunctivitis) of the conjunctiva, etc., the blepharospasm, the photophobia, and the pain.

Summing up the conclusions reached, I should say that:

1. As regards general hygiene, the superiority of the electric light over gas as an artificial illuminant is so overwhelming as to admit of no discussion. It is incontestably the light of the future, and the public should not rest until its meeting-places, such as theatres, halls, reading-rooms, churches, etc., are lit by the most perfect system at its command.

2. A study of the published cases of injury of the eyes by the electric light shows that not one was due to the use of the diffused light as an illuminant.[1] The popular prejudice against such a use of it is absolutely without justification. All the cases reported were of scientific investigators, etc., or workmen about the light, who approached it very closely, gazed at it protractedly, and without protecting colored spectacles

3. The ocular injury is due, not to the supposed preponderance in the electric-light rays of violet and ultra-violet (chemical or actinic) waves, but simply to the greater number (intensity) of the usual length light-waves.

4. The symptoms of the ocular injury are possibly immediate temporary "retinal paralysis," blepharospasm, central scotomata, chromatopsia, after-images, etc. Within twenty-four hours there come on intense photophobia, lachrymation, ocular pain, a feeling as of foreign bodies beneath the lids, conjunctival hyperæmia and congestion, pericorneal circles, etc.

5. The attack usually lasts but two or three days; the prognosis is excellent; the treatment is simply cocaine and atropine instillations and cold or hot compresses.

6. Workmen and experimenters who must approach closely to the electric light should protect their eyes by smoked or tinted glasses, the depth of the tint being greater where the light is more brilliant, the proximity greater, or the exposure longer. In the welding-works the workmen must be particularly careful about this, and must also not expose the skin of the face, neck, and hands to the action of the light. The precaution may not be amiss to advise the curious against testing their eyes by gazing at the ordinary arc and glow lights at short-range.

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[1] I hardly understand how there could be mydriasis, as in one instance reported.

[2] Prager Vierteljahrsschr., Bd. 100, S. 200, 1868.

[1] I have not alluded to a common complaint against the arc lamp that it is injurious because of its changeableness or flickering. This was and sometimes is exceedingly uncomfortable. With the rapid improvements being made, and especially with the improved Edison glow light, the complaint is fast becoming groundless.

[2] *Note:* It is rare that the Germans are caught napping, but I doubt if a single one of the above articles is indexed in Michel's Jahresbericht der Ophthalmologie.

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THE ARREST OF HEMORRHAGE FOLLOWING EXCISION OF THE TONSIL.

By RICHARD J. LEVIS, M.D.,
of Philadelphia.

Persistent hemorrhage after excision of the tonsil is extremely rare, but such instances are occasionally reported, and the subject has recently been discussed and means for its arrest suggested. There have occurred cases in which the methods usually recommended would be entirely impracticable.

I have seen but a single case in which profuse and dangerous hemorrhage continued after the operation. In that instance an unnecessary entire removal of the tonsil had been effected by the form of guillotine that draws out the mass before the cut is made.

At my first visit to the patient, a male adult, he had bled freely for some hours and was blanched and exsanguinous. Various inefficient expedients had been resorted to, including the application of cold and temporary pressure. Of course, there had been used Monsel's solution—the vilest of the abominations called styptics—a class of remedies which declare the inefficiency of the surgeon, and have caused more hemorrhage by masking its source and by loss of time, than they ever arrested.

After excavating from the mouth and fauces the masses of hard, black clots produced by the iron solution, the cut surface was seen bleeding freely.

All bleeding was instantly arrested by simply passing an ordinary tenaculum firmly through the tissues of the base of the tonsil, and giving the instrument a decided twist. The torsion effected, compressing the oozing vessels, was maintained by closing the patient's jaws on the handle of the tenaculum as it protruded from the mouth. The jaws were then securely held together by a firm bandage about the head, from the chin to the vertex.

Before resorting to the expedient with the tenaculum, it had been my intention to transfix the base of the tonsil with a curved needle, place a ligature tightly behind it, and leave it in position, after nipping off its point, and bringing the end of the thread out of the mouth.

After the arrest of the hemorrhage the patient rested through the succeeding night, experiencing apparently no annoyance from the presence of the tenaculum.

I may remark, in illustration of another expedient for arrest of hemorrhage after tonsillotomy, that at my visit on the next morning I was prepared, in case hemorrhage should recur on the removal of the tenaculum, to pass one or more ligatures through the base of the tonsil, and for this purpose had ready for use needles of short curve, fixed in needle-holders. A concentric constriction of the base, thus made, would effectually prevent any possible hemorrhage.

In this case no hemorrhage followed on removal of the tenaculum, after it had remained twelve hours in position.

In a case of hemorrhage after excision of the tonsil, recently reported, the operator was able to seize the tissues with a volsella and apply a ligature. In occasional cases the difficulty or impossibility of thus applying a ligature to isolated vessels is due to the flatness of the surface and the lack of loose tissue to be grasped.

Considering how full is the arterial supply of the tonsil, it is remarkable that hemorrhage does not frequently occur in the operation of its excision. On injecting, in the cadaver, the vessels supplying the tonsil, I have been impressed with its varied vascularity, derived mostly from the inferior laryngeal, the lingual, and the palatine arteries; and I wonder if it is always realized that the internal carotid artery actually touches the base of the tonsil, especially when that vessel, describing a curve, with the convexity inward, as it frequently does, seems really to bear against it.

THE TREATMENT OF PERITONITIS.[1]

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PHYSICIAN TO THE PENNSYLVANIA HOSPITAL.

THE question how to treat peritonitis is one of the greatest importance, and upon the decision eventually reached will in the future depend the lives of many patients. Should the leaders of our profession decide that the administration of saline purges is the best treatment, and this be for a few years taught in the schools, the ordinary practitioner will soon acquiesce. If such a consummation is to be deplored, now is the time for us who are of the contrary way of thinking, to protest.

To me it seems clear that before any conclusion can be reached, it must first be acknowledged that peritonitis, as ordinarily seen, diagnosticated, and treated by physicians, is so different from the lesion or disease which has been successfully dealt with by surgeons by the administration of saline purges, that it must be recognized that, from the standpoint of therapeutics, the two questions are as far apart as though they were two widely differing diseases.

As a therapeutic measure, no one disputes the wisdom, under some circumstances, of making an attempt to abort an inflammation; and yet it is equally well known that such an attempt, when made after the inflammation has progressed so far that to abort it has become impossible, must not only fail, but, equally certain, will be productive of positive harm. It is a common rule of treatment, and one that holds good in the great majority of instances, that an irritated, sore, or inflamed part is to be put as nearly as possible at rest, and that whatever increases the pain suffered is likely to be injurious. Why shall we make an exception to this rule in all cases of peritonitis by giving salines, which throw the bowels into a state of great activity, and increase the pain, at the same time denying the patient opium, which equally certainly relieves?

I have been, and am an advocate of the use of opium in all cases of peritonitis as seen by physicians, but at the same time I have never denied my patients the use of laxative medicine, and it is, I am sure, by the judicious administration, according to the special needs of each particular case, of the two seemingly diametrically opposed drugs that the best results will be attained. The reason, probably, that the use of opium in the disease is being decried is that it has been abused. It should not be given to the point of narcosis, nor should it be expected that in cases of severe peritonitis the pain will be abolished. Measurable relief only should be looked for, with alleviation of the terrible colicky pains so characteristic of the disease in its full development. I have never been a believer in the treatment by the use of anodynes exclusively, and think it absurd to talk—as I have heard—of purging the patient by the use of opium and belladonna. If we had six months in which to work, and could first establish the opium habit in the patient, we might, perhaps, encourage diarrhœa, or at least not interfere with it by the administration of opium. In a disease, however, which lasts usually but a few weeks at the very outside, such an expectation can end but in disappointment.

The treatment that will give the best results, according to my view, is the following: in all cases in which no physical obstruction can be diagnosticated, for which operation must be at once recommended, and this should include doubtful cases in which operation may subsequently become necessary, there should be prescribed liquid diet, small quantities every two hours, and every two hours a quarter of a grain of opium, and one-twelfth of a grain of extract of belladonna. To this may be added, if it should seem advisable on account of pain, the administration twice, or at the outside, four times in twenty-four hours, a one grain powdered opium suppository. At the same time injections of warm water, with or without soap, should be given once to three or four times daily. If flatus is passed, the case continues to be a very hopeful one. This course should be rigidly adhered to for from twenty-four hours to five days, or possibly longer, when the time will have arrived at which it becomes necessary to consider the propriety of using some sort of aperient.

Purgatives are given in peritonitis for two distinct purposes: first, to increase the peristalsis, and thus overcome obstruction; and, second, to induce large watery movements, for the purpose of directly depleting the abdominal, and especially the intestinal, bloodvessels. After operations, inflammation in greater or less degree is so common, and we are so well aware that it is liable to occur, as to be always prepared to meet it. This being the case, it may be met in its very incipiency, and if inflammation can ever be aborted, it is under such circumstances. The explanation of the success, therefore, of surgeons in treating peritonitis with large doses of saline purgatives would seem an easy one, for they deal with a stage of the disease which never comes under the management of physicians, as people in the early stages of the disease do not seek advice, and, besides, if they did, the differential diagnosis between idiopathic peritonitis in its earliest stage and enteritis or mere intestinal irritation would be an impossible one. No one, I think, should deny surgeons the credit their courage deserves for having instituted this revolutionary method of treatment, for, measured by our old standards, it is revolutionary; but at the same time we must not err upon the other side, and with undue haste conclude that the method is applicable to all cases. I have long

[1] Read before the Philadelphia County Medical Society, November 7, 1888.

been of the opinion that the old surgical practice of shutting up the bowels for a week, with opium, after an operation for hemorrhoids, was a bad method.

Having, then, quieted our patient somewhat during the first few days of attendance, with injections and liquid food, and belladonna and opium, and at the same time been very careful not to induce narcosis, or in the least to depress the respiratory forces, for, if we do, the remedy will be worse than the original disease: we must, as already said, consider the propriety of getting the bowels moved. The decision in regard to the precise moment at which this attempt is to be made is, in my opinion, one of the most delicate questions that can arise in therapeutics, and gives to each of us, when we meet it, an opportunity to show a real genius for the treatment of disease. The medicine, however, which shall be given is very easy to decide upon—here there is no inflammation in its early stage. and therefore there can be no question of aborting it. Salines could only act upon the bowels like other drugs, relieving tension, if you like, by abstracting water directly from the intestinal bloodvessels; but, so far as the mere moving of the bowels is concerned, they are by no means so effective, or, as the laity call it, "searching," in their action as some of the vegetable purgatives. Any one who has been called upon to treat cases of fecal accumulation (a paper upon this subject was published some years ago by the author, in the *Transactions of the College of Physicians of Philadelphia*) will have learned how useless and ineffective are salines if the bowels are very sluggish, while small and repeated doses of vegetable purgatives are perfectly satisfactory, and certain in their effects. In such cases salines, and even castor oil, will induce large watery stools, but no fecal matter is brought away, and it seems as though the fluid material had come from below the accumulated feces, or came by, and the patient is no better off than before, though probably he will have suffered much pain. No better combination can be given than a pill consisting of a twelfth of a grain of extract of belladonna, a quarter of a grain of extract of nux vomica, a quarter or an eighth of powdered aloes, and a half or one grain of rhubarb. This should be given at first once or twice in twenty-four hours, and; if violent pain be set up—which, however, seldom happens—it should be stopped, and the opium and belladonna every two hours used again for a day or two, when the attempt with the aperient may again be made. After a day or two the pill may often be given every four hours, and I have often seen the obstruction give way under this treatment, and the patient entirely recover.

It would be most unfortunate, it seems to me, for the science of medicine, and still more so for those who in the future are to suffer from peritonitis, if the treatment of the disease with sedatives should be entirely abandoned, as has been recently recommended. Let us look at the question reasonably, and without prejudice, and in the future assign to one class of patients operation by a competent surgeon, and saline purgatives afterward, if those skilled from a study of the subject in that particular direction judge that to be the proper course; and to the other, a reasonable use of anodynes and injections, with moderate doses of vegetable laxatives when the time comes for their administration. Because, in the past, the sedative method of treatment has been abused, and patients have been hurried out of the world by the unwise management of incompetent physicians who have narcotized them, is no reason why we should cast aside what is good in the method, any more than it would be wise for us now to assume that, because the administration of saline purges is advisable in the surgical treatment of some cases, it is, therefore, to be looked upon as a panacea in the disease, and the treatment to be recommended in all cases.

For my own part, I am a firm believer that the disease may arise idiopathically, and, when I say this, I mean from an attack of enteritis or violent indigestion, or from chilling of the body, just as I belive pleurisy may arise, and, in such cases, it is reasonable to suppose that the inflammation very soon becomes more or less generalized, though, of course, it must have had its origin at some point. Such cases as these, if it be conceded that they ever arise, are not amenable to surgical treatment, for there is no point of special obstruction, and operation could not effect any good, unless by merely cleansing.

In conclusion, I cannot perhaps, better emphasize the correctness of the statement that the treatment by sedatives should not be abandoned in all cases of peritonitis, than by calling attention to the fact that in many cases in the past, and the same thing is certain to occur again in the future, post-mortem examination has demonstrated that the disease was so extensive, or of such a nature as to be necessarily incurable. Under such circumstances, I think no one will dispute that the province of the physician is to do what he can to soothe pain, and to make the last days and hours of the patient as endurable as circumstances permit, and no other one drug will conduce so much toward this end as opium.

THE TREATMENT OF PERITONITIS.[1]

BY J. M. BALDY, M.D.,
OF PHILADELPHIA.

I PRESENT this brief paper to you to-night, not because I have anything particularly new to offer, either in the line of pathology or in that of treatment,

[1] Read before the Philadelphia County Medical Society, November 7, 1888.

but that a full discussion of this most interesting and important subject may perchance be drawn out. The points as I shall present them here are, I know, considered somewhat radical from a medical point of view; but they are views toward which surgeons are gradually drawing nearer and nearer, and of which actual experience is daily demonstrating the value.

Peritonitis arises, as you are well aware, from a vast variety of pathological conditions, and in dealing with it the origin of the inflammation must always be taken into consideration. The plan of immediately putting every case of this disease on the opium treatment is departed, and, nowadays, no one would think of pursuing such a course, in a peritonitis following rupture of an abscess, for instance, provided an abscess was known to have ruptured; nor in the case of a penetrating wound of any of the hollow viscera, with extravasation of its contents into the peritoneal cavity.

The first thing to be established when called to a patient suffering with peritonitis, is the cause of the trouble. This is not by any means an easy thing to do. A case may present all the symptoms of peritonitis, and on close examination an inguinal hernia be found. The temptation here is immediately to set this down as the cause, and proceed accordingly, especially if the hernial mass is tender, and presents other symptoms of excitation, where before it had been quiescent. In such a case one may readily be misled, as has happened to myself, and the real cause found to be something else.

Again, although the books lay down most beautiful rules for diagnosticating the different varieties of intestinal obstruction, it is often impossible to say more than that there is a probable mechanical obstruction of some kind or other, somewhere in the abdomen; but even then one cannot be sure that the obstruction is caused by the peritonitis, and not the peritonitis by the obstruction. I have seen peritonitis in cases in which, on examination, it was not at all certain that the pelvic contents were at fault, and yet an operation has developed the correctness of that hypothesis. One could go on indefinitely multiplying instances of mistakes of this kind, and mistakes which are perfectly justifiable in a majority of cases. It is simply impossible in a large number of instances to do more than guess at the real cause. But although we cannot always detect from a mere examination of a patient the cause of the trouble, it does not follow by any means that the disease has arisen idiopathically. The more I see of peritonitis, the closer and closer am I inclined to draw the line at the idea of an idiopathic origin. I am not yet quite ready to deny the existence of such an origin altogether, but as our knowledge of intra-abdominal troubles has grown, just so steadily has idiopathic peritonitis diminished in frequency.

On the other hand, cases of peritonitis are constantly falling into our hands in which the diagnosis is comparatively easy, and then I think the indications for treatment are plain; while the exact condition of affairs remains in doubt, the best of men may hesitate, and often their hesitation is responsible for the unfortunate ending. Once, however, given a correct diagnosis, there should be no hesitation as to the course to pursue.

To begin with, I must unhesitatingly condemn the use of opium in any of its forms. I think the use of this form of drug, in these diseases, tends rather to increase the trouble than to diminish it; at any rate, if it does not do damage *per se*, it certainly puts the parts in an excellent condition to continue on in the course in which they have started, and blinds us to the damage being done. In a paper read before the Obstetrical Society last November, on "The Use of Salines in Peritonitis after Laparotomy," I dealt with the use of this drug quite extensively, and my convictions then stated have been constantly confirmed and strengthened, not only in peritonitis following operation, but in peritonitis from all causes. I may quote the following from that paper:

"Heretofore I have treated cases of peritonitis on the opium plan. In one case I gradually increased the dose of the tincture of opium until the patient received in one day between sixty and seventy grains of the drug. I have never been satisfied with the results of this kind of treatment, nor have I been able to convince myself that it was even logical. We are taught that opium 'puts the bowels in splints,' and in this manner keeps the peritoneal surfaces from rubbing together and increasing the inflammation. But the bowels are already in splints, as it were, and any one trying to make them move will be quickly convinced of this fact; therefore, for this purpose opium is superfluous. The drug relieves the pain, it is true; but oftentimes it does not even do this, excepting in enormous doses. Relief of pain is practically all that opium can do for good, in peritonitis. It, however, does a world of harm; it helps to keep the bowels in splints and so favor the formation of those great masses of adherent intestine which we so often find the cause of subsequent intestinal obstruction; also, the formation of numerous bands of organized lymph which as often bring a patient to grief, in after years; still worse, it closes, by paralyzing all the excretory organs, all the avenues of escape for the poisonous products of inflammation formed in that great lymph-sac, and in this manner supplies material, the best possible, for keeping up and spreading the inflammation, much more surely than the rubbing together of the parietal and visceral peritoneum will."

It also almost invariably causes tympanites, with all the accompanying dangers of over-distention, and, as has happened, death from cardiac paralysis. And further, I may say that this drug lures us into a false sense of security, and benumbs all our desires to make any further effort in our patient's behalf.

The pain and tenderness being relieved, and the sufferer being made comparatively comfortable, we stand by and wait, our waiting as often leading us to the coffin as not, without our even suspecting that our patient is worse. After having stupefied and benumbed the patient, a consultant is perchance called in to the case, only to find his hands tied, by having all the symptoms masked, and with no possible way of knowing what progress the disease is making, but by a surgical procedure, and that, in view of the fact that the patient *seems* better, he dare not propose.

In great contrast to this picture stand the results of the use of salines. Here the bowels are put into active peristaltic action; this motion tends to prevent the formation of adhesions and bands; the peritoneal cavity is drained of the products of inflammation; the inflamed surfaces are relieved of all engorgement, by a thorough depletion of the vessels in the intestinal walls; the inflammation is most effectually stopped; the pulse and temperature almost immediately improve, and the pain is relieved as quickly as can be by the use of opium. This, theoretically, may seem strange, but nevertheless it is a clinical fact.

While writing this paper I was called to a woman sixty years of age. Her knees were drawn up; her abdomen was greatly swollen and tympanitic; the pain was excruciating, and she could not tolerate any manipulation whatever of the belly-wall; her temperature was elevated and her pulse quick; an anxious expression of the face and vomiting were present. The cause of the attack could not be detected, probably only because she could not be handled properly for an examination. Salines were administered, and in much less than fifteen hours the belly-walls were shrunken and flabby, permitting of free manipulation, with hardly any evidence of pain; vomiting had ceased; pulse and temperature were both in good condition, and, in fact, all the symptoms were rapidly disappearing. She passed a most comfortable night, sleeping almost the whole of it. In twenty-four hours more I had discharged the patient, simply with instructions to keep her in bed for a few days longer, and feed her well, in order that she might regain the strength she had lost. I may add that the case had appeared so bad when first seen, that I had notified my nurse to be ready for a possible operation the next day. This same result has followed this treatment so often, and so constantly in my hands that I have come to look for it with certainty as soon as the bowels can be made to act. Of course, should we suspect that a strangulated hernia was at the root of the trouble, or that there was pus in the peritoneal cavity, or that the intestines were obstructed by an organic lesion at any point, we would not think of resorting to purgation, but would immediately turn to our surgical resources.

The sources of a peritoneal inflammation are so numerous, it would be useless to attempt to enumerate them further; but the general rule might, I think, be safely laid down, that where it can be demonstrated that the disease is caused by an organic lesion, abdominal section is indicated, and that in addition those other cases which refuse speadily to yield to purgative treatment, should be immediately dealt with in the same manner. When a pus sac is known to be at the bottom of the trouble, or an appendicitis is in existence, it is folly to fool with drugs of any kind; and where drugs are used and relief does not quickly follow, whether the cause is known or not, it is equally unwise to delay longer. The source of the disease once removed, the peritonitis will rapidly disappear.

Cases reported in the journals are constantly demonstrating the worthlessness of all medical interference, and are steadily pointing to the fact that peritonitis is preëminently a surgical disease, and should not be intrusted in the hands of a purely medical man, but should be always and at once turned over to the surgeon. An article by Mr. Tait, in a recent number of the *Annals of Gynecology*, sets this forth in flaming colors The very first case reported by him was one of purulent peritonitis, which had been tinkered with, until even the operation he performed was too late to save the woman. An abdomen containing pus, either encysted or free in the cavity, whether produced by puerperal disease or any other, demands opening and removal of that pus from wherever found. If there is not active peritonitis present, the person afflicted is liable at any minute to be so attacked. This fact does not seem to be sufficiently understood, and physicians are constantly treating pelvic abscesses with local applications, electricity, etc., sometimes suspecting the true condition, at others, mistaking it for some other condition, such as tubal pregnancy, for instance, as has been done lately by one of the most prominent advocates of the electrical treatment for extra-uterine pregnancy, in this country.

Where an intestinal obstruction, an appendicitis, an inflamed tubal condition, a penetrating wound of any of the viscera, a tumor, or any of a dozen other troubles are found, they should be dealt with according to our present surgical light. In such cases as these peritonitis is not a disease, but merely a symptom, and when the original cause is removed the trouble subsides at once. Often the mere opening of the abdomen, together with irrigation and drainage, is sufficient. This seems especially to be true of those cases of tubercular peritonitis, so many of which have lately been springing up, and to which I called attention in my paper on "Exploratory Laparotomy" last spring. Then I was able to show that six deaths from various causes had taken place out of thirty-six, collected in Germany, and only

one death out of seventeen cases which I had collected in this country. This death was due, not to the operation itself, but to defects in the details of the operation. In all these cases irrigation or drainage, or both, followed the operation, and seemed all that was needed to effect a permanent cure. It is useless to take up your time by quoting cases—literature is teeming with them, and almost every journal picked up contains a lesson.

To sum up the conclusions of this brief paper, I should say that when called to attend a patient suffering with peritonitis, we should first determine the cause, and if it is found to be an organic one, the immediate use of the knife, followed by irrigation and drainage, is the only proper method of procedure.

Should the cause be found to be functional, the use of purgatives, followed, if necessary, by enemata, is indicated; and these failing to relieve quickly, surgical methods should soon follow.

If the case is of doubtful character, I would be inclined first to try the purgatives, and stand ready to interfere with the knife at a moment's notice.

Of course, it is impossible to lay down any absolute general rules for the treatment of every case, as each and every one must be a study of itself; and yet, as nearly as rules can be laid down, the above seem to me to be the proper ones.

EFFECT OF ANTIPYRIN ON THE SECRETION OF MILK.

By T. HAVEN ROSS, M.D.,
of Buffalo, N. Y.

The following case I think worth reporting, and I hope that further proof of the action of antipyrin in suppressing the flow of milk will be forthcoming from other members of the profession, as it is a simple and usually safe medicament.

The notes of this case as taken from my record are as follows:

"October 27, 1888, 9 A. M., was called to see Mrs. ——. She had taken her child (sixteen months of age) from the breast the previous evening, and at the time of my visit was experiencing much pain and discomfort from the distention of her breasts. Ordered breast-pump applied, which drew off eighteen fluid-ounces of milk; also ordered eight grains of antipyrin three times daily. (Had previous knowledge of this patient's tolerance of the drug.) At 3 P. M., eight fluid-ounces were drawn with the pump.

Oct. 28, 9 A. M., six fluid-ounces, and at 6 P. M. three fluid-ounces were drawn.

29th, 9 A. M., two fluid-ounces, and at 6 P. M. one fluid-ounce were drawn.

30th. No milk in breasts. Medicine discontinued. Pain and discomfort disappeared after first dose of antipyrin. No change was made in the previous rather generous diet. Appetite and digestion remained good."

Reference may be made to an article in the *Bull. gén. de Thérap.*, June 30, 1888, page 554, mentioned in the *American Journal of the Medical Sciences* for October, 1888, page 404.

MEDICAL PROGRESS.

The Local Treatment of Disorders of the Cerebral Membranes.—The local treatment of disorders of the cerebral membranes has always been recommended. For a number of years Mosler has adopted a derivative treatment in such conditions, with success even in severe cases. In a case of intense meningitis, following upon acute rheumatism, prompt results were attained by the application of a large fly-blister to the shaved head and two behind both ears, after other methods had been fruitlessly tried. The author has used this mode of treatment in various forms of meningeal disease and has demonstrated that extensive counter-irritation (by vesicants or ointment of tartar emetic) applied in the immediate neighborhood of a suffering organ, as directly upon or close to the scalp, is even efficacious in chronic affections of the cerebral membranes. Failure may be owing to the application not being extensive or protracted enough; aspiration, in case of chronic hydrocephalus, was not attended with permanently favorable results. Notwithstanding the compression made after the operation, the exudation reaccumulated. Repeated aspiration of hydrocephalic fluid, however, is well borne. Loebker has punctured the head in two cases of chronic hydrocephalus, evacuated the fluid and applied compression. The fluid returned in a few days. Both children died from the disease.—*Therapeutische Monatshefte*, October, 1888.

Therapeutic opinions upon Ichthyol and its Preparations.—Dr. Carl Pauli, of Cologne, writes that upon the merits of the above-named preparation, he finds opinions very much divided. While some hold that it is totally useless, others highly praise its merits. Among the latter is Unna, who lately has written a monograph upon this preparation, in which he states that he has used it in different affections, but especially in skin-eruptions.

Lorenz adds to this that he found in ichthyol an unsurpassable remedy for acute and chronic articular rheumatism, for gout, mastitis, and contusions, in which troubles the curative actions of this drug were surprisingly quick.

Klony is of the same opinion (*Therapeutische Notizen von Rabow, J. C.*, 1886, No. 9). He treated at sea a number of shin-bone affections with ammoniated ichthyol and oil of turpentine, with marked results. According to him, after the application of this drug to the painful surface, pain disappears, a blister taking its place.

The opinion of Klamann is not quite so favorable ("Treatment of Erysipelas with Ichthyol," *All. Med. Central Ztg.*, March 26, 1887). He states, "that although he has obtained some satisfactory results from its use in erysipelas, he found that in the more severe cases it was unable to retard the progress of the affection, and he was compelled to return to his old but surer remedy of terpentinphenol, in conjunction with the internal administra-

tion of salicylate of sodium and tincture of aconite." Klamann likewise states "that the drug in question showed no material action upon articular rheumatism, while upon synovitis its action is at times satisfactory, at times not. With some patients the pain from the burning was so intense that nothing could induce them to submit to a second application."

"My own experience," writes CARL PAULI, "has been that for contusions and distortions there is no drug from the outward application of which we derive greater benefit. The same might be said of its use in lymphangitis, if three cases which I treated with it are worth considering. It was my intention to try ichthyol in erysipelas, but Dr. Oppolzer's old advice to me, 'never throw away dirty water, till you are sure of the fresh,' made me abstain, and adhere instead to Schwimmer's and Gayza Faludi's treatment, which consists in applying the following:

R.—Carbolic acid	ʒss.
Olive oil	ʒj.
Precipitated chalk	q.s.—M.

Make a soft paste.

"I can say but little about its use in skin diseases, but suppose that its beneficial action here is largely due to the sulphur it contains. Thus Unna finds it of great use in urticaria, in which disease he says that it surpasses salicylate of sodium and atropine. As to the use of ichthyol in articular rheumatism, my observations concur with those of Klamann. I might state here that an old lady, a sufferer of more than twenty years from this malady, obtained no marked benefit from its use, but continued to rub it in the affected parts at night, as, according to her daughter's statement, she slept better after the application."—*Deutsche med. Wochenschrift*, October 25, 1888.

Treatment of Cancer with Intraparenchymatous Injections of Ozone-water.—DR. IGNAZ REICHERT, of Aschaffenburg, gives an account of a case of cancer treated according to the methods of Dr. Schmidt, which consists in the intraparenchymatous injections of ozone-water

The patient, a widow, born May 31, 1821, presented herself with an epithelial carcinoma of the left cheek, which she attributed to a wart which had formed there four years ago, and had become inflamed through repeated irritation. The carcinoma was of the size of a quarter of a dollar, its edges red and infiltrated. The needle of a Pravaz syringe permeated its substance as though it were butter; the neighboring lymphatics were not enlarged.

The patient was treated from May 15th to July 24th with intraparenchymatous injections of Lender's ozone-water, the strength of the injections being increased by degrees. Resolution took place rapidly; on July 7th the size of the cancer was reduced to that of a ten cent piece, its body and edges being studded with new granulations, its substance was firm, the syringe entering with great difficulty. From this on, the size of the affected part became smaller and smaller. On July 24th the writer made his last injection. Two days later union had taken place, palpation revealed slight infiltration; the skin of the cheek was of a uniform color.

In a foot-note the writer adds that he submitted Lender's ozone-water to a chemical analysis, and found that it contained a large amount of chlorine, and puts the question: "Is the success of this treatment due to the ozone or chlorine?"—*Münchener medicinische Wochenschrift*, September 4, 1888.

The Milk-curdling Ferment of the Stomach.—DR. E. G. JOHNSON has studied the action of the milk-curdling ferment of the stomach in the clinic of Professor Riegel, of Giessen, and subsequently in the Sabbatsberg Hospital, Stockholm. Researches were made in twenty-four cases on the presence of the ferment and the pathological conditions relative to it. Fourteen of these patients suffered from hyperacidity, accompanied in four of them by moderate dilatation of the stomach. In one of these latter there was also hypersecretion of the gastric juice. One case had considerable dilatation of the stomach, with hyperacidity and marked hypersecretion. In three cases the dilatation was insignificant, but there was hyperacidity, complicated in one case by slight, and in another by very great, hypersecretion; in the third case the hyperacidity was accompanied by chlorosis. Three other patients suffering from hyperacidity were also the subjects of gastric ulcer. Dr. Johnson also examined four cases of hyperacidity with neither dilatation nor hypersecretion, of whom three were chlorotic; a case of catarrhal jaundice, four cases of severe chronic dyspepsia, and five cases of carcinoma of the stomach. The contents of the stomach were removed while the patient was fasting, and also four or five hours after food had been given for the purpose of the observations.

Dr. Johnson sums up his researches as follows: 1. The milk-curdling ferment is a constant product of the glandular secretion of the stomach, and it is met with at all periods of digestion except in cases of cancer of the stomach, in which it is never found. 2. The ferment was also found in the hypersecretion of the gastric juice of a fasting patient after his stomach had been washed out the previous evening. 3. Gastric juice, which contains hydrochloric acid, and which when neutralized causes coagulation of milk, does not appear to be affected in its action by the greater or less amount of acid contained in it at first. 4. The milk-curdling ferment does not pass into the urine. 5. The ferment is easily destroyed by an excess of alkali, and it is probably on this account that it does not pass into the feces under normal conditions. 6. During fever the ferment appears to be absent from the stomach. 7. The ferment causes coagulation more slowly in boiled than in fresh milk. 8. During the coagulation of milk by the ferment the reaction remains neutral, and lactic acid is not met with after coagulation.—*Lancet*, November 17, 1888.

Hygienic Treatment of Dyspepsia.—DUJARDIN-BEAUMETZ affirms that, in order to regulate the diet of dyspeptics, we must distinguish three conditions: 1. One in which there is an over-secretion of the gastric juice; 2. One in which the secretion is deficient; 3. One due to sympathetic disturbances.

1. *Dyspepsia due to over-secretion of gastric juice.*—Diet to be purely vegetable, consisting of eggs, farinaceous preparations and fruit. *a.* The eggs to be soft-boiled, especially the yolk. *b.* Farinaceous foods to be taken in the form of soft soups, as potato, turnip, lentil, Indian wheat, chestnut, oatmeal, barley, and macaroni soups; all these, of course, to be rendered as thin as

possible. *c.* Vegetables to be thoroughly cooked and to be taken in the form of vegetable soups, or soup made of small peas, all salads to be well boiled; the same holds good for spinach and turnips. *d.* All fruits, with the exception of raisins, to be made in the form of jelly. *e.* The bread to be well baked, or toasted. *f. Drinks.* Wine mixed with water, light beer, or milk mixed with alkaline waters.

2. *Dyspepsia due to deficient secretion of the gastric juice.*—Peptonized substances, toasted bread, bouillon, mixtures of broths and milk, powdered meats, scraped meats, peptones, pepsin, lemonade with hydrochloric acid:

℞.—Acid hydrochloric . . . . . ʒij.
Aquæ . . . . . 1 pint.
One glass after each meal.

3. *Dyspepsia due to sympathetic troubles.*—Diet to be purely vegetable.—*Revue de Thérapeutique*, November 1, 1888.

Action of Antipyrin on the Teeth.—Dr. Galippe, a dentist, finds that antipyrin taken internally has the effect of blackening the teeth. Teeth which, previous to the administration of this drug, had lost their enamel, blackened sooner than otherwise healthy teeth. The discoloration is only temporary, as it can be removed by cleansing the teeth with water containing an abundance of oxygen.—*Deutsche medicinische Wochenschrift*, November, 1, 1888.

Tubercle of the Aorta.—Pittrich relates (*Zeitsch. f. Heilk.*, abstr. Weichselbaum, *Centralbl. f. Bacteriology*, iv. 20) a case of acute miliary tuberculosis in a boy, twelve years of age, in which the source of general infection appeared to be the rare (hitherto undescribed) condition of tuberculosis of the aorta; for to the posterior wall of the ascending aorta adhered some tuberculous lymphatic glands, from which the tubercle had spread into the coats of the vessel. Bacilli were found both in the glands and in the aortic wall, and it is assumed that they were disseminated through the blood stream by direct detachment from the intima of the vessel.—*Lancet*, November 17, 1888.

Inoculation of Erysipelas in Cancer of the Breast.—Dr. A Holst (*Centralblatt für Bakt.* and *Journ. des Cour. Méd.*, 1888, 39) reports the following: "Several months after the extirpation of one of her breasts for cancer, a woman noticed upon her skin a new cancerous formation, the entire right side of her chest resembling a budding field. Her general condition being good, she was advised to submit to an erysipelatous inoculation, to which she consented willingly.

"The first inoculation proved unsuccessful, but thirty-six hours after the second one, the patient was seized with rigors; the characteristic eruption of erpsipelas gradually spread over her right arm, and by degrees the disease was well developed, the redness extending to the left side of her chest and back. The fever abated on the seventh day.

"Four months and a half after inoculation, everything had returned to the initial stages; the perceptible improvement of the first few months had disappeared, cancerous nodules reappeared on the inner surface of the arm, and the malady continued its onward course.

"To sum up, Holst concludes, in accord with Nelsen, that under the influence of erysipelas the progress of cancer is at first arrested, but later on its fatal termination is hurried."—*L'Union Médicale*, November, 1888.

Treatment of Ozæna with Naphthol.—At the last medical congress of the French Laryngological Society, Dr. Ruault stated that in treating ozæna he irrigated the nasal passages three or four times daily with the following mixture:

To one pint of water add a large spoonful of the following powder,

℞.—Borate of soda.
Bicarb. of soda, āā equal parts.
And then a teaspoonful of the following:

℞.—Naphthol . . . . . 12 parts.
Alcohol (90°) . . . . . 84 "

In very obstinate cases after having performed irrigation with the above, insert into the passage, and allow to remain for fifteen minutes, a tampon saturated with the following:

℞.—Naphthol . . . . . 12 parts.
Tr. quillaiae . . . . . 88 "
Aquæ dest. . . . . 400 "

The advantages of this treatment are, first, a rapid disappearance of the bad odor; and second, marked diminution of the secretion. The only disadvantage in the use of naphthol is a slight burning sensation, perceived immediately after its application, which, however, soon disappears. It is *essential* that the irrigating mixture should be freshly prepared before each application.—*Deutsche med. Wochenschrift*, October 25, 1888.

Treatment of Hepatic Colic with Olive-oil.—Dr. Charles N. Valin, of Zeloeil, Que., reports that he has tried the "olive-oil" treatment for hepatic colic, as first advocated by Dr. Just Touatre, of New Orleans, with marked success. He had tried all the remedies recommended by the leading authorities, such as morphine, chloroform, ether, antipyrin, and various purgatives, without any decided benefit. In the present case he resolved, as a *dernier ressort*, to try olive-oil. His patient, a woman about forty, was getting rapidly worse. Her temperature was high and unvarying, with marked delirium; her digestive organs very irritable; tongue red, dry, and glazed. He was in doubt whether she would be able, while in such a condition, to take and retain such large doses of oil. Still he tried. Two large glasses of oil were administered, the second fifteen minutes apart from the first, and, to his surprise, both were retained. Two hours later, she passed a number of calculi, some large, some small; some hard, others soft. From this on the temperature subsided, the tongue became moist, food was retained, and his patient made a rapid recovery.—*L'Union Médicale du Canada*, November, 1888.

Treatment of Pneumonia.—Maragliano, of Genoa, at the first Congress of the Italian Society for Internal Medicine, recently held in Rome, states that he regarded the cardiac weakness in pneumonia as due to poisoning of the blood from the infecting microbes of this disease, and holds that venesection is indicated in pneumo-

nia under the same conditions that it would be indicated in uræmia. In his experience the internal administration of iodide of potassium and calomel, as well as parenchymatous injections, has proven to be of no avail. Cold baths he has found to do good. Of antipyretics he holds quinine to be the best. Alcohol is indispensable. Ipecac he finds injures the heart.

CARDARELLI thinks it would be difficult to assume from the mere spreading of the pneumonia infiltration whether venesection was indicated or not; it would likewise be difficult to state that venesection would rid the blood of its infectious elements. As for ipecac, it was certainly a heart poison, but its beneficial action upon the bronchia and lungs would certainly supplant its action upon the heart.—*Deutsche med. Wochenschrift*, November 1, 1888.

Action of Hydrofluoric Acid on the Tubercle Bacillus.—At a late meeting of the Academy of Medicine, DR. JACCOUD called attention to the fact that he had inoculated four guinea-pigs with the sputum of phthisical patients, and then six others with phthisical sputum which had been submitted to the action of hydrofluoric acid for forty-five minutes, with the following results:

Two of the first four died rapidly of septicæmia, the autopsy revealing no tuberculous lesion whatever. The two remaining presented a diffuse tuberculosis, the greater part of the granular deposit being found in the axilla, the neck, and the mediastinum; while in the lungs, the liver, and spleen the deposit was just in the state of formation.

The six guinea-pigs inoculated with the sputum which had been submitted to the vapor of hydrofluoric acid presented all, at the expiration of from five to eight weeks, a diffuse tuberculosis, identical with that of the first six guinea-pigs. The extent of the tuberculous deposit was even greater, reaching the mesenteric ganglion, and this too when the strength of the acid was at its maximum, being of equal parts of acid and water.

Hence he deduced the conclusion that hydrofluoric acid in solution does not modify in any way the virulence of the bacillus tuberculosis.

Similar experiments with pure hydrofluoric acid led Dr. Jaccoud to conclude that it would destroy the bacillus tuberculosis, but the establishing of this fact was of no practical value, since it would be impossible to introduce pure hydrofluoric acid into the human economy.

DR. HÉRARD, responding to Dr. Jaccoud, said that air charged with pure hydrofluoric acid could be inhaled for at least one hour at the rate of two pints a minute; the acid thus inhaled would contain from fifty to sixty per cent. of water, which could even be tolerated by children.

Dr. Hérard further spoke in commendation of the experiments of Dr. Trudeau, of New York, while he criticised severly those of Drs. Grancher and Chantard, these gentlemen having made use of intra-venous injections, while hydrofluoric acid should be simply inhaled. He also stated that a number of physicians have obtained great success from the acid inhalations; thus Drs. Moreau and Cochez treated sixty cases, in twenty-eight of which there was marked improvement; Dr. Goetz treated thirty cases with improvement in nineteen. He regretted that Dr. Jaccoud did not put his experiments to greater advantage. With pure acid, or with a solution of two-thirds or three-quarters pure acid, the remaining one-third or one-quarter being water, the results would differ largely. In his opinion Dr. Jaccoud had experimented with solutions too dilute to act with efficiency.—*L'abeille Médicale*, November 8, 1888, and *L'Union Médicale*, November 8, 1888.

Meco-narceine a New Hypnotic.—DR. LABORDE reports in the *Bull. de l'acad de Méd.*, 1889, No. 19, that in conjunction with Dr. Duquesnel he has obtained from opium a new alkaloid to which he has given the name of méconarceine. He claims for this preparation, that it produces a quiet sleep, only slight contraction of the pupils, slight anæsthesia, no headache, and no disturbance of the digestive tract.—*Centralbl. für klinische Medicin*, October, 1888.

To Prevent the Deposition of Fat in the Mammæ.—After speaking of the difficulty which women encounter in taking iodide of potassium to prevent the deposition of fat in their breasts, PROFESSOR KISCH gives the following treatment, which he praises highly:

At first the breasts must be covered with a salve of iodoform, the formula of which is as follows:

R.—Deodorized iodoform . . 1 part.
Vaseline (pure) . . . 15 parts.
Essence of peppermint . . 11 drops.—M.

The breasts are then enveloped in warm linen cloths which have previously been dipped in the following solution:

R.—Alum . . . . . 1 part.
Acetate of lead . . . 15 parts.
Distilled water . . . 100 " —M.

Over the towels place some waxed paper, the whole to be left in place for twelve hours. The inunctions and wrappings are repeated morning and evening. The treatment must be continued for several weeks. The breast should also be rubbed with an aromatic alcohol to harden the skin and prevent it from drying up. Finally, a bandage should be worn which will hold the breast well up.—*Gazette Gynécologie*, November 1, 1888.

Successful Treatment of Leprosy.—DR. DRECKMANN claims to have successfully treated a typical case of lepra tuberosa and anæsthetica by Unna's method, which consists in painting the entire body, hands and feet excepted, twice daily, with a ten to twenty-five per cent. salve of chrysarobin, while to the hands and feet is applied a five to twelve per cent. pyrogallic-acid salve. Internally, forty-five grains of ichthyol are taken daily, in divided doses.—*Wiener med. Presse*, Nov. 11, 1888.

Treatment of Whooping-cough.—DR. WIKSTRAND, of Stockholm, writes (*Wiener med. Blätter*, No. 17, 1888) that in Sweden alum is considered the best remedy for whooping-cough. It is administered in a two per cent. solution, of which a small teaspoonful is taken from four to six times daily. Under its influence the severity as well as the frequency of the cough abates, the vomiting ceases, and the appetite is reëstablished.—*Centralbl. für klinische Med.*, Nov. 17, 1888.

THE MEDICAL NEWS.

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SATURDAY, DECEMBER 8, 1888.

DEATH BY DECAPITATION AND BY ELECTRICITY.

THERE has recently been considerable discussion among the learned societies and by the press, in France, upon the subject of capital punishment by decapitation, as practised in that country. There are those who oppose the mode of execution by decapitation, because, as they suppose, feeling and consciousness survive, for a time, the severance of the head from the body; others, who regard the application of capital punishment as a great social crime, which has never prevented any other crime, and are opposed absolutely to the death penalty in any form whatsoever.

M. PAUL LOYE, who has made a careful study of the subject of death by decapitation, with the object of determining, by the aid of scientific experimentation, whether consciousness survives decapitation, has sought the present opportunity for publishing the results of his investigations. He has left out of the question everything that relates to sentimentality and the right society exercises of depriving a human being of life, and has devoted himself strictly to the scientific aspects of the question. He has not shrunk from being present at the execution of criminals, and of noting carefully the appearances after decapitation; and being instructed on this point, he has sought in the laboratory the explanation of the facts which he has observed, and has endeavored to determine their physiological value. The conclusion arrived at which most interests society is that, if the penalty of death is to remain in the penal code, decapitation is the mode of punishment which abolishes most completely the sufferings which result from the application of the penalty.

Investigations have shown that if, by means of anæsthesia, an animal is plunged into profound unconsciousness, the contractions of the face, the distortions which appear to indicate violence of suffering, produce themselves with their usual regularity and physiognomy. They are not then conscious phenomena, indicative of sensations received, but unconscious automatic acts.

While society has the right to demand that the criminal who has merited the penalty of death shall not be subjected to horrible torture, it is not ready to assume the position of the "elegant sentimentalists, sometimes maudlin and semi-poetic," who would abolish capital punishment absolutely. The mutilation of the body by the guillotine is repulsive, though unattended by suffering, and furnishes a specious argument to the opponents of capital punishment for pursuing their opposition. The suffering often caused by hanging through maladroitness of the executioner, suggests a change to a mode which would meet the requirements of the law without the possibility of inflicting torture. It is upon this ground that New York has recently prescribed the mode of execution by electricity in the place of hanging. No execution has yet taken place by this mode.

In THE NEWS of May 14th last, the subject of death by electricity was discussed, and reference was made to the recent studies of Arsonval upon this mode of death, which show that the action of electricity is direct and disruptive, causing instantaneous and immediate death, by disintegrating effects upon the nervous, vascular, and muscular tissues, which lose instantaneously their physiological properties. Fell, of the Niagara University, Buffalo, by a series of experiments on animals, has found that a sufficiently powerful electric current produced instantaneous death, and that resuscitation after the passage of such a current is impossible.

As it has been proved that both the mode by electricity and that by decapitation are unattended by suffering, it would seem to be a matter of indifference, from a humanitarian standpoint, whether the one or the other be the established form of capital

punishment, but the latter cannot be relieved of the picture of horror. Time will determine whether the country is prepared to follow the precedent established by the State of New York.

THE FLORIDA EPIDEMIC ABATES.

At Jacksonville, November 27th was the first in 112 days in which a "clear bill" was declared by the Board of Health; that is, no new cases of yellow fever and no deaths from that cause were registered on that day. Twenty cases only then remained in the city, and these were all convalescent and past the danger-point. The total cases during the epidemic will approximate very closely to 5000; and the ratio of mortality, according to the latest official data, is not quite nine per cent. of the reported cases. The fair presumption is that the epidemic of 1888 is about to pass quietly into history, to be grouped with the numberless other pestilences that have destroyed human life.

But just what will be the condition of Florida when Jacksonville has wholly recovered? It becomes highly important, during the coming winter, to settle the sanitary questions which so deeply interest the southern tier of our States; they are questions which relate to the dangers, believed by many to be permanent at several points below the frost-line in Florida; and also to the remedies and the future prevention of a similar destruction of life and values. A grave responsibility rests with the Legislature of the afflicted State as to what steps are taken this winter toward the formation of a strong State Board of Health. No false economy should be allowed to come between the welfare of the State and country and the full and efficient policing of the Tampa Bay district.

We would strongly urge the medical press to join in pointing out the prime importance of establishing a vigorous and liberally equipped State Board of Health. The profession should unite in holding up the hands of our Southern brethren, who must otherwise struggle yearly with an entrenched enemy. Those who travel in Florida should also be cautioned that the lower part of its peninsula may be infected all the winter through. It is reported on good authority that there were cases of fever in Jacksonville as early as last February, the infection having been brought northward from Key West and Tampa in midwinter along the line of the railway from the latter town.

We rejoice with Jacksonville that the terrible visitation of 1888 is apparently drawing to a close, but we must not overlook the dangerous possibilities which must continue if this winter's preventive work be not done wisely and well. To imitate a form of expression used by Pasteur, in his recent address, the law of humanity places the duty, upon those in authority, to guard well the "frontiers of life."

The resignations of Prof. D. Hayes Agnew from the Chair of Surgery and of Prof. William Osler from that of Clinical Medicine were presented to the Trustees of the University of Pennsylvania last Tuesday, to take effect at the end of the winter's course. They were accepted with expressions of regret and high appreciation of the value of the services which they had rendered to the University.

The Commissioner of Agriculture has appointed a commission, consisting of Professor William H. Welch, of Johns Hopkins University; Dr. E. O. Shakespeare, of Philadelphia; and Professor T. J. Burrill, of the University of Illinois, to investigate the subject of swine diseases in the United States, and the methods of their treatment and prevention.

A protest to the Council of the British Medical Association, signed by a large number of the most influential members of the profession in Great Britain, calls attention "to the publication in the 1450th number of the *Journal* of the Association of the facsimile of a 'script' by the late Emperor Frederick of Germany, referring to his treatment by one of his medical attendants. The publication of this document the signers regard as a violation of professional confidence, and its appearance in the *British Medical Journal* as discreditable to the medical profession of this country. They accordingly request the President and Council to take such immediate action as may be required to clear the Association and profession from the discredit now attaching to them in respect to this matter."

The *British Medical Journal* of November 24th (just received) "feels it necessary to say that the protest appears to us, editorially, to be based on incomplete information, and that an answer which we consider adequate will be laid before the Council." A press cablegram from London, on November 28th, however, states that at a Council meeting of the British Medical Association a resolution was passed deprecating the publication of the details of the late Emperor Frederick's illness as a violation of professional confidence; and that the Council

accepted the regrets of the Editor of the *Journal*, concerning the publication of them.

In this connection it may be further stated that Sir William Jenner has resigned from the British Medical Association on the grounds, it is alleged, that as Court Physician he could not countenance the publication, in the *British Medical Journal*, of the late Emperor Frederick's notes to Sir Morell Mackenzie; and Sir Morell Mackenzie has resigned his membership in the Royal College of Physicians for reasons which are not stated.

Recent elections in England and Wales have placed medical men at the head of the municipal government in the towns of Hull, Bath, Marlborough, Wolverhampton, Liskeard, Morpeth, Godalming, Congleton, Calne, New Romney, and Yeovil.

At the University of Vienna a considerable number of American students registered at the opening of this year's session of the medical school. The *Lancet*, November 17th, states that there were seventy English-speaking medical students, "most of them American," and that some of the courses are given in English. The *Vienna Weekly News*, the only paper published in English in that city, has a column devoted to the interests of the medical students.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, November 7, 1888.

The President, J. Solis-Cohen, M.D., in the Chair.

Dr. A. V. Meigs read a paper on the

TREATMENT OF PERITONITIS.

(See page 641.)

Dr. J. M. Baldy then read a paper on the same subject.

(See page 642.)

Dr. J. H. Musser said that he had but little, if anything, to add to the able papers of Drs. Baldy and Meigs, unless it be his own personal experience. While interested, and in a measure agreeing with the remarks of Dr. Baldy, yet, as a medical man, he must largely agree with the conservative views of Dr. Meigs. In one respect, however, he begged leave to differ, and he believed that cases of idiopathic or so-called functional (?) peritonitis must be very rare, for in the course of a tolerably large experience he had not met with any; but, on the other hand, had had frequent cases that originated from some local cause. Indeed, it is his belief that in every instance almost, some disease, acute or chronic, in the intestinal tract, or diseases of the organs covered by the peritoneum, is the cause of inflammation of that membrane, apart from septic or microbic causes.

A successful treatment of all cases, therefore, must depend, in the first place, upon the recognition of the many antecedent pathological conditions that may be considered as causal. A large majority of the cases that he has seen got well without resorting to surgical measures. In these instances a similar plan of treatment to that suggested by Dr. Meigs was, to a certain extent, carried out, notwithstanding the fact that a local or a focal origin, if you please, of peritonitis could always be determined, and the general and local medical treatment will often either prevent, or at least counteract, the deleterious effects of a general inflammation, as before intimated.

The plan of treatment which he has carried out in most of the cases has been rather simple, beginning in the first place with local depletory measures either by blisters or by local depletion with leeches, not fearing the depressing effects of local depletion, but rather encouraging further bleeding than otherwise, following the depletion by poultices, and possibly by general stimulating applications, such as turpentine. At the same time he endeavors to open the bowels as early as possible, and while, on the one hand, vegetable cathartics are of service, yet, on account generally of the excessive vomiting, some mercurial has usually been preferred. He uses principally, if vomiting is present or not, calomel in doses of one-twelfth, one-eighth, or one-fourth of a grain every hour or half hour, until the desired effect is produced; and, in addition to the purgative effect, he is, indeed, not disturbed if he can get a constitutional effect of the drug also, for, as is well known, its antiphlogistic effects in peritonitis are undoubted.

With regard to opium, he uses it simply to relieve pain, and, hence, in the smallest doses possible. He prefers the hypodermatic injection of morphia, and it is surprising frequently what small doses are sufficient to give comfort. Sometimes an eighth or a sixteenth of a grain, twice daily, will suffice. In addition to the anodyne effects of the drug, its stimulating effect is, of course, of service, and after the mercurial has acted on the bowels, he combines the extract of opium with the drug, giving the opium more frequently, and the mercury less. Usually he uses atropia with the morphia, and in this way counteracts the depressing effects of the opiate.

Stimulants are worthy of mention. He begins their use early, and, indeed, from the first twenty-four hours in some cases permits it as the only kind of food administered until all danger is past. He gives it early, in order to avert or to mitigate the stage of collapse which is likely to ensue. With this general plan of treatment, bleeding, moderate purgation, opium to relieve pain, and the use of stimulants, his patients have usually recovered. He may very often endeavor to give in some way quinine, preferably by suppositories.

Patients die of peritonitis generally, not because its management is not understood, but because it is not recognized sufficiently early. Hasty examinations without due regard to the local origin of the symptoms of the disease—and of these pain is usually the earliest—cause one frequently to overlook the actual condition of the case. Two cases he has seen lately, one in consultation, another at the autopsy, illustrate this. They were both cases of peri-cæcal abscess. In the one instance the

patient was ill for four or five days prior to my visit. Prior to the last twenty-four hours he visited the physician's office, simply complaining of recurring attacks of sharp abdominal pain, which were attended with a moderate amount of diarrhœa. The physician looked upon it as a case of cholera morbus, and treated it accordingly. The day of his death the patient did not leave his bed, but was visited by the physician, who was horrified to find him in collapse. Unable to recognize the cause of collapse, not even suspecting that death was imminent, he asked me to see the patient. The thready pulse, the persistent watery vomiting or regurgitation of fluid, the cold sweat and the cold extremities, the tympany, and the rigid abdominal muscles, told the tale more plainly than his words, and an area of dulness in the right iliac fossa, with faint local swelling and tenderness, pointed to the appendix as the probable source of the inflammation. Death ensued a short time afterward, and at the autopsy a most extensive peritonitis, secondary to rupture of the vermiform appendix and peri-cæcal abscess, was found.

In the other instance the patient, a lad sixteen years old, was seen by the physician at six in the evening. In the hurry of his work he neglected the minute examination which he usually bestows upon them, and prescribed for what he thought was a colic induced by indigestion, which colicky pains had been going on for two or three days, the patient, however, being out most of the time. He saw him later in the evening, much improved, apparently, from the effects of opium, so often misleading because it masks symptoms, and was shocked to hear the next morning that at six o'clock his patient had died in collapse. In this case foreign bodies in the appendix had caused the usual rupture, with peritonitis and death. So, too, peritonitis arises, as we know, after inflammation of the tubes or ovaries, after disease of the biliary passages, and after other instances of local disease.

The most difficult question for the physician to decide, and the one that has always been the most serious in his mind, next to the grave question of when to open the bowels, is when to ask the surgeon's help. Given a case with a palpable tumor, with local œdema, the fever, the vomiting, and the general tenderness indicating a general inflammation, and the question is an easy one to decide. On the other hand, the tumor being obscure, possibly only an area of dulness outlines it, the symptoms, however, becoming threatening: shall we then ask for help? He always does, of course, when in doubt; but he is fixed in his mind to have surgical aid and instructs the family to that effect when persistent vomiting continues, when the night-sweats become marked, and when tympany and bowel obstruction are decided. Indeed, after the second night-sweat, even if there is no general peritonitis, but physical signs or clinical phenomena of local disease, he is much disturbed. Then, too, the increased frequency of pulse, or perhaps the signs of approaching collapse, which thus far, in his cases he has not waited for, would induce him at once to ask for a surgeon.

A word in regard to salines, of which he has mentioned nothing before. He has never been impressed with their value in peritonitis, although he has seen some of his colleagues administer them. In but one instance were they of any service, and this was after an abdominal section. But in all probability persons with a larger experience than he has had may see benefit. He did not wish to mislead any to think all his cases got well by medical treatment. Drs. Keen, Price, and Kelly could testify that he has sought the benefit of their skill several times.

A word in regard to a variety of peritonitis which he has neglected to mention, and that is, the so-called cases of recurring peritonitis. In a large majority of instances they are secondary to tubal disease or disease of the appendix; and if a second attack occurs he advises at once operative interference, either before the attack has terminated or after the attack has subsided.

In corroboration of his remarks as to the value of the medical treatment of peritonitis, he quoted the experience of Dr. Girvin, which has been large, and who is a most careful, astute physician. He told him recently that he had never lost a case of peritonitis, and that his plan of treatment is the use of some remedies to open the bowels, along with the use of remedies to allay the pain. To open the bowels he usually gives a pill containing a quarter or a half a grain of calomel, half a grain of extract of rhubarb, half a grain of aloes, with one-eighth or quarter of a grain of the extract of opium. Giving the pill early, he very soon secures a purgative effect, and when that is induced feels much more comfortable in regard to the welfare of his patient. He uses morphia by subcutaneous injection, and only in sufficient doses to keep the patient comfortable throughout the illness.

(Dr. Musser was compelled to leave the room before the discussion closed, but has learned that Dr. Baldy asked why he should endeavor to open the bowels early in a case of peritonitis. In reply he begs to add this, which is the only explanation which has satisfied himself, and which he gives, of course, with reserve, as he does not believe it has been previously mentioned. Take, for instance, a case of appendicitis with rupture. We know that the inflammation is always due to obstruction in the canal. If such obstruction breeds deleterious effects in this canal, a similar obstruction would produce the same bad effects in the larger canal, the intestine; and, in addition to an inflammation of the serous coat, a retention inflammation is set up, and an enteritis complicates the case. Moreover, great danger in peritonitis arises from the tympany, no doubt, and to prevent it the lumen of the canal must be opened early, for if not, the bowel paresis which ensues in peritonitis, and which contributes to the tympany, will prevent clearing the canal.)

DR. JOHN B. ROBERTS said that on general principles he objects to opium after operative procedures. The question to-night seemed to be dogmatically settled by gentlemen of large experience. He was brought up on the opium treatment and has employed it. He believes now that it was a mistake in many cases.

DR. M. PRICE did not believe that peritonitis is ever idiopathic. Call it by what name we please, it resolves itself into some irritation or lesion. Carbolic acid, almost pure, and phenol sodique, in its full strength, he has known to be poured undiluted into an abdomen after an operation. There will always be peritonitis after operations until so-called antiseptic surgery of the peritoneum is abolished. Mr. Tait is correct in saying that the opium treatment has its place only when you have given

up all hope of curing the patient and want to make him comfortable. We make him perpetually comfortable. We not only put the bowels in splints but the whole body in a fracture-box. Prof. George B. Wood, thirty years ago, advocated after bleeding, calomel and purging with Epsom salts and senna, and perhaps somebody suggested it before him. But in recent times the credit of the saline treatment belongs to Mr. Tait. Something was said of five days' treatment. The case should be in the surgeon's hands before that. There is already pus.

The tympany is of several kinds. The distention is often the cause of death. He has opened the belly and found a diverticulum adherent to the omentum, with the intestine through it; the intestine was returned without difficulty; the distention was the cause of death. Many cases of recovery are of such character. If we knew it, purging would be out of place. In operations when there are sharp pain and indications of inflammation, then we do not wait. We open the belly and supply moisture. We pour in hot water—gallons of it—and give turpentine enemata and Epsom salts.

The bowels are already in splints. He has given six ounces of Epsom salts where ordinarily half an ounce would answer. As soon as free movement occurs the patient recovers.

DR. C. B. NANCREDE said that he was the first surgeon in this city to open the belly for shot-wound, and as he never hesitated to operate on abdominal cases when necessary, he cannot be accused of timidity. But is it not time to draw the line when we are told that all cases of peritonitis which do not at once improve should be treated with the knife? He is a living specimen of recovery without section after an appendicitis.

No one has here advocated the use of a drug valuable in the sudden collapse incident to the onset or in the later stages of some cases of peritonitis, when opium means death. That drug is atropine, hypodermatically, in large doses. If it is true that the vast majority of, if not all, cases of peritonitis are secondary—or, in other words, infectious—there are many experiments besides those quoted to-night, shedding a flood of light upon the subject, which show that the peritoneum can take care not only of fluids or foreign bodies, but even of pathogenic organisms and feces, provided that the quantity introduced during a given time does not exceed a certain limit. If all the material can be absorbed in an hour or two, the animal is safe. If that limit is exceeded, we have general suppurative peritonitis. Here the eliminative treatment finds its explanation in preventing a general peritonitis, as the peritoneum is only an enormous lymph sac.

If opium is only to be given to relieve pain, this is not what was formerly understood by the opium treatment. It will not splint the bowel in mere anodyne doses, which was Alonzo Clark's original idea, and that of all his followers since.

He disagreed with the medical gentlemen who would send for the surgeon to lock the stable-door after the horse had escaped; in other words, wait, as is too often the case, until an operation is what is termed a "last resort," which amounts really to there being no reasonable chance for a success which an earlier resort to the knife would have very probably insured. The surgeon should be permitted to see the case *early*, and share in the decision as to when the operation should be done, when it should be postponed, and when declined; it is only by the chance afforded by a study of the *medical course* pursued by the case that the surgeon can operate intelligently and successfully.

He is using less opium as he grows older in all surgical work. He has tried the saline treatment of peritonitis in several cases after section, and he has had no cause to regret it.

DR. JOSEPH PRICE had learned something new, to-night—that abdominal distention impedes the locomotion of germs. He was glad to be enlightened on this point, it will be of very great value to the class of operators that fear them so much. Experienced operators in abdominal surgery fully recognize the deleterious effects, and the great danger of distention. The mere presence of an excess of fluid or gas in the intestine is, in itself, an efficient cause of obstruction. He was not prepared to accept such counsel. He would much rather incise the bowel, and thus favor the evacuation of gas and drainage of intestinal contents. Dr. Meigs counselled delay. On the contrary, the earlier and simpler the operation the greater is the chance of recovery. He could not, therefore, conceive any advice more unfortunate, more unjustifiable for patients dying of peritonitis. In fact, the whole tendency of modern surgery is to anticipate exhaustion, shock, and collapse. The paper of Dr. Baldy referred to peritonitis, and not to pain and tenderness, and his remarks were devoted to peritonitis due to a recognized lesion, and not to pain and tenderness.

The treatment of peritonitis resulting from external or infectious origin would be entirely irrational were drainage discarded. Once decide that the best method of clearing up a peritonitis is by operation, then drainage must follow that operation as naturally as sutures are used to close an incision.

If a peritonitis is septic in its origin, such as is seen frequently after criminal abortion, carlessness after miscarriage, and after gonorrhœal tubal disease, drainage is the third statement of the argument of operation:

1. Operation is required.
2. Douching and flooding the abdomen are necessary.
3. Drainage is the bulwark of the whole procedure.

That cases of infectious peritonitis recover without drainage, is no more an argument against it than that some patients recover from smallpox, never having been vaccinated. If he used all the antisepsis possible before and during an operation, and at its close overlooked the fact that he was leaving a possible infection behind, his antisepsis was only a parade, and misleading. If Listerism is the foundation of modern surgery, drainage is the keystone of its application in such cases of abdominal surgery.

DR. LONGAKER said that from the remarks of the previous speakers it appeared that the opinion held of the value of opium in peritonitis depends upon the question, Is it ever an idiopathic disease? His own views are that it is not, he had never seen a case in which it was. In general he agreed with Dr. Baldy.

In the *Transactions of the Pennsylvania State Medical Society* for 1888, vol. xix. p. 103, there is reported a case in which abdominal section was done for puerperal peritonitis. It was one of the first cases operated on in this city. In June, of the present year, he operated on a second case, whose history is very interesting. Female, aged twenty-six years, married fourteen months. About two years

before, she "caught cold" during her menses. Her periods became painful, and a physician was consulted. Weekly intrauterine applications were made, but as there was no improvement, and as the treatment was extremely painful for hours, other advice was sought. Two months before his visit she fell into the hands of the gentleman with whom he saw her. He found the uterus fixed by a mass in Douglas's cul-de-sac; sound entered two inches, At her next period the doctor was called up in the middle of the night because of great suffering. She passed from bad to worse, and on the day preceding his visit developed unmistakable signs of general peritonitis. She failed to get any relief in spite of grs. ij ext. of opium by suppository. Magnesium sulphate, ʒj dissolved in hot water, was ordered to be given every hour. It relieved the obstinate constipation, and gave her far more relief than the opium. Twenty-four hours later abdominal section was made. Pus was found in the abdominal cavity. Irrigation and drainage were used. All her symptoms improved, but on the fourth day she began to fail, and died on the fifth. Autopsy revealed obstruction of the bowels. It also showed a ruptured pelvic abscess situated in the appendages of the left side. The peritoneal cavity contained no fluid, and the operation had arrested the course of the disease. A knuckle of ileum had become adherent to the pelvic viscera, causing obstruction and death. The case is a warning to those who are in the habit of treating the endometrium promiscuously.

DR. J. TYSON confessed that when he heard Dr. Meigs portray his typical case of peritonitis he felt that the treatment he advocated would be the one he should always prefer to follow. Yet he did not think the parallel he drew between the state of the peritoneum in peritonitis and that of a "sore" is altogether justified. The inflamed peritoneum is rather to be compared to the earlier stages of inflammation in which we resort to leeching and depletion, and he had, by what has been said since, been strongly impressed by the rational character of the saline aperient treatment. It has the further advantage in quickly cutting short those doubtful cases in which a fecal accumulation is producing pain, the first symptom of inflammation, which disappears at once with its cause —the fecal mass.

He desired to call attention to a fact not mentioned, that rheumatism of the abdominal muscles sometimes simulates peritonitis so closely as totally to mislead. He has himself had this experience, and seen the symptoms yield with magical promptness to salicylate of sodium.

DR. MEIGS could not see why any one should doubt the possibility of the occurrence of idiopathic peritonitis any more than idiopathic pleurisy. There is no reason, in the nature of things, why it should not occur, and that some physicians have not met with it is no proof that others who say they have are mistaken. Pleurisy, by extension of the inflammation, may be the cause of pericarditis, and in cases of diaphragmatic pleurisy peritonitis to some extent is a common secondary result. If there be diarrhœa, with inflammation of the mucous coat of the bowel, why should it not give rise to peritonitis? It seemed to him that in the discussion the difference between peritonitis, as seen by those who are not surgeons and the disease as a sequel of operations, has not been sufficiently kept in mind.

DR. BALDY said that Dr. Meigs and Dr. Musser believe in the opium treatment, and yet after giving opium for a few days they give purgatives. He should like to ask them what object they have in view when they give the purgatives, and what they expect to accomplish with them? Theoretically it is perfectly possible to have idiopathic peritonitis. Practically, however, he had never seen it. Some of the gentlemen in discussing this subject seem to draw a line between the cases of peritonitis seen by the physician and those seen by the surgeon. Peritonitis is peritonitis the world over. It makes no difference whether it is set up by the surgeon himself or comes on idiopathically (so called): the result is always the same—inflammation of the peritoneum; the cause cannot alter the principles of treatment. His paper discussed peritonitis and not simply pain and distention; as for an inflammation throwing out a bland fluid, he did not believe it. The products of inflammation are always irritating. Opium has been advocated in small doses and to relieve pain. In his experience small doses will not relieve pain. The dose must be comparatively enormous. Purgatives will relieve the pain as quickly as opium, and when once relieved it remains relieved, which it does not do with opium. If he were aiming at the relief of pain solely, he should most decidedly turn to his salines.

The objection has been made that salines give watery stools and do not carry away much feces. Of course, it is desirable that the fecal matter should come away, and so it does in great part. But large, watery stools are exactly what we desire to obtain. The whole principle of this treatment lies in its depleting powers. For this purpose the salines are given in large and *concentrated* solutions: they are peculiarly adapted to the early and highly inflammatory stages of inflammation. If purgatives are going to relieve, they will do so quickly, and we have no need of waiting for four or five days to know what to do next. Often, unless we use the knife, our patient is dead in five days. Recurring peritonitis always demands surgical interference.

Together with Dr. M. Price, he had but one use for opium in this disease—if everything else has failed, it is a good thing to give *ad libitum*, to ease the last hours of the patient.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, November 6, 1888.

THE PRESIDENT, GEORGE W. JACOBY, M.D., IN THE CHAIR.

DR. W. H. THOMSEN read a paper entitled

PARENCHYMATOUS NEURITIS,

including the histories of a number of cases.

Case I. was that of a man of fifty-six years, formerly engaged in the lumber business and obliged to stand in water containing floating ice for hours at a time. This patient's symptoms had first pointed to central spinal trouble, but later had been those of a multiple neuritis. They had, however, been gradual in their onset, and there had been no evidences of pressure. There had been no shooting nor lancinating pains. The actual cautery had been applied over the spine and the hot glass rod over the sensitive nerve trunks. Nitro-glycerine had given the greatest relief from pain in this case.

Case II. was that of a man of thirty-five years, convalescing from diphtheria. There was no pain, but the laryngeal and pharyngeal paralysis was so profound that the general health suffered.

Case III. was that of a boy convalescing from typhoid fever. There were pains in the legs and feet with dropping of the feet.

Case IV. was that of a woman confined to her bed for three months in the course of phthisis. There were pains in this case in the feet extending to the knees, and in the hands with dropping of the ankles and the wrists, which progressed steadily till death, when extensive nerve degeneration was found without any evidences of inflammatory action. The case was presented as a typical example of a widespread inflammatory degeneration of the nerves. It was a parenchymatous neuritis analogous to that which could be produced by a ligature. The origin and history differed from those of an inflammatory neuritis, however much it might resemble this condition in its ultimate results. In the cases of typhoid fever and phthisis the degeneration may have been due to a mechanical cause—pressure from the loss of the surrounding fat. The fact that the vagus was implicated in the latter disease did not disprove the theory, as no statement had been advanced in regard to the condition of the bronchial glands.

The theory of a non-inflammatory parenchymatous nerve degeneration was important, as the treatment of such cases would differ from that of cases of inflammatory origin. In the latter antiphlogistic and soothing treatment was indicated, while in the former stimulating applications were required. It was questionable whether the term neuritis could be correctly applied to this type of the disease.

Dr. L. C. Gray had not heard the commencement of the paper, and did not understand why Dr. Thomsen objected to the term neuritis. He thought that the symptoms could be scarcely classed under any other name. There had been, as he understood, downright pain in the course of the nerves and eventually paralysis and atrophy. These were the clinical symptoms of neuritis and measured the severity of the neurotic lesion. The treatment of neuritis was, he believed, excepting traumatic neuritis, still *sub judice*. Since attention has been called to the disease, all had probably met with cases in which no local measures seemed to do any good. Quinine, the salicylates, and iron had been most beneficial in his own cases. Change of air was to be recommended. Even in the paralytic stage it was his custom to move the patient to another part of the city or even from a lower floor to a higher floor in the house. Change of location was especially indicated in the cases arising in our somewhat malarial suburbs.

Dr. M. A. Starr applied powdered menthol diluted with starch under a flannel bandage for the relief of the pains of neuritis.

Dr. Jacoby did not find the diagnosis of neuritis so easy as Dr. Thomsen had represented it, especially in typhoid fever. Myositis was a more probable lesion in typhoid fever. Zenker had even stated that neuritis was never found in this disease. As to the distinction made between the inflammatory and degenerative processes, both might be found in the same case. Which process was primary, and which secondary was still a question.

Dr. Thomsen had intended to call attention to only a single point, and necessarily had neglected many others touched upon by the gentlemen in the discussion. He had intended to call attention simply to the impropriety of the term neuritis, as applied to the process in the cases which he had described. There was no reason to suppose that the process in the case of phthisis had been inflammatory. The inflammatory process had certain definite characteristics, there were vasomotor disturbance, infiltration with serum and leucocytes, or living matter. In the neuritis of alcoholism, both in private and in hospital practice, he had observed circulatory and nutritive changes; there had been the same tendency as in the inflammatory process in other parts of the body. There was evidently inflammation of the sheath of Schwann and constriction of the nerve. These conditions contrasted with those in the cases which he had described. In the treatment of true neuritis he had used an application of equal parts of the oil of peppermint and olive oil, a preparation similar in action to that which Dr. Starr had recommended.

Dr. Gray inquired whether Dr. Thomsen recognized no inflammatory process within the sheath of Schwann.

Dr. Thomsen replied that he knew of no changes within the sheath of Schwann which could be called inflammatory.

NEWS ITEMS.

Disinfection of Clothing.—The Lord Mayor of Dublin made his formal inspection on Saturday last of the newly organized establishment for the disinfection of clothing, which has been opened by the Public Health Committee. The system is worthy of notice, not only as a guide to other sanitary authorities in organizing similar establishments, but for the purpose of satisfying the public that they may with confidence avail themselves of the facilities thus afforded to purify articles of clothing which may have been in contact with infection.

Much that has been done in the name of disinfection heretofore has been worse than useless. A common system in workhouses and other places where the matter is not understood, has been to fetch the bedding and clothing from infected houses in a van, that which is only suspected of infection being mixed with that which is reeking with miasm. The mass is then placed in what, for euphony, is called a disinfecting chamber; a pauper nurse or other unreliable official is supposed to raise the temperature to at least 240 degrees, which, unless he is watched, he may not do. The clothing is afterward removed and replaced in the cart which conveyed it to the place, and distributed to the owners, bringing back with it, possibly, not only its own original infection, but a share of that which the other clothes contained.

The arrangement which has been established in Dublin, under Sir Charles Cameron's advice, has none of the vices of this method. The clothes are collected by a van kept specially for the purpose, brought by the front gate to the receiving-room, and, having been ticketed, introduced into the disinfecting chamber (one of Dr. Scort's invention), where, under proper inspection, they are heated and kept up to the needful temperature for a specified time. They are then taken out by the opposite door into the laundry, where they are made up in the usual way, at the usual laundry charges, and sent off in a separate van by the back gate, never

having come into contact with infection from first to last. The process is carried out without charge, except for the laundry work, which is not essential to the disinfection, but is provided in order to induce the public to use the establishment without sending the infected clothing to ordinary laundries.

The entire establishment costs the citizens about £500 a year, which, if a total loss, would be money well expended, but it is expected that the receipts from hospitals and the public will recoup to the taxpayer a considerable part, if not the whole of this expenditure. The effective disinfection of clothing is one of the most important items in the improvement of the public health of any town, and it may be taken for granted that a penny expended in this way will probably save many shillings, so that the outlay of the Public Health Committee in this direction will be found to be true economy, and will redound to their credit and to that of Sir Charles Cameron, their very efficient officer.—*Medical Press*, November 7, 1888.

The Employer Responsible for the Medical Fees of his Servant.—According to the *Bulletin Médical*, the Justice of the Peace at Châlons-sur-Marne has rendered a decision by which he compelled an employer to pay the physisician whom he had called in to attend his servant; the judge in this case naming the amount of the fee himself. From this the *Bulletin* draws the conclusion that an employer calling upon a physician to treat his employé, the former is responsible for the fee of the latter; especially would this be the case when the employé who is being treated is unknown to the physician, and who while being treated is discharged by his employer, the latter failing to notify the physician to stop treatment; but in this case the employer will not have to pay any more than the person benefited by the treatment could have afforded to pay.—*L'Union Médicale*, November 6, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 27 TO DECEMBER 3, 1888.

By direction of the Secretary of War, leave of absence for two months is granted HENRY M. CRONKHITE, *Major and Surgeon*, to take effect upon his being relieved from court-martial duty at Little Rock Barracks, Arkansas.—Par. 7, *S. O. 276, A. G. O., Washington*, November 26, 1888.

By direction of the Secretary of War, the leave of absence granted EDWARD B. MOSELEY, *Captain and Assistant Surgeon*, in Special Orders No. 67, November 12, 1888, Division of the Pacific, is extended three months.—Par. 13, *S. O. 275, A. G. O.*, November 24, 1888.

CARTER, WILLIAM F., *Captain and Assistant Surgeon* (U. S. Army).—Is granted leave of absence for one month.—Par. 4, *S. O. 116, Headquarters Department of Texas, San Antonio*, November 12, 1888.

CLENDENIN, PAUL, *First Lieutenant and Assistant Surgeon* (U. S. Army).—Is granted leave of absence for fifteen days, to take effect December 4, 1888.—Par. 3, *S. O. 116, Headquarters Department of Texas, San Antonio*, November 12, 1888.

BENHAM, ROBERT B., *Captain and Assistant Surgeon* (U. S. Army, Fort Laramie, Wyoming).—Is hereby granted leave of absence for one month.—Par. 1, *S. O 111, Headquarters Department of the Platte*, November 24, 1888.

By direction of the Secretary of War, the leave of absence granted ROBERT R. BALL, *First Lieutenant and Assistant Surgeon*, in Special Orders No. 129, October 18, 1888, Department of the Missouri, is extended one month.—Par. 11, *S. O. 279, A. G. O., Washington*, November 30, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING DECEMBER 1, 1888.

GAINES, J. H., *Surgeon*.—Detached from the "Dolphin," and ordered home.

ANDERSON, FRANK, *Passed Assistant Surgeon*.—Detached from the "Pensacola," and ordered to the "Dolphin."

JONES, WILLIAM H., *Surgeon*.—Detached from the "Richmond," and ordered to the "Pensacola."

RUSSELL, A. C. H., *Passed Assistant Surgeon*.—Detached from the Naval Academy, and ordered to the "Wabash."

DRAKE, N. H., *Passed Assistant Surgeon*.—Detached from the "St. Mary's," and ordered to the Coast Survey.

WHITAKER, H. W., *Passed Assistant Surgeon*.—Ordered to the Nautical School-ship "St. Mary's."

LEWIS, D. O., *Passed Assistant Surgeon*.—Detached from the Coast Survey, and ordered to the Naval Academy.

WENTWORTH, A. R., *Assistant Surgeon*.—Ordered for examination preliminary to promotion.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE FIVE WEEKS ENDING NOVEMBER 24, 1888.

WYMAN, WALTER, *Surgeon*.—Detached from New York, N. Y., and ordered to Washington, D. C., November 16, 1888.

LONG, W. H., *Surgeon*.—Detached from Detroit, Mich., and ordered to Cincinnati, Ohio, November 16, 1888.

FESSENDEN, C. S. D., Detached from Norfolk, Va., and ordered to Louisville, Ky., November 16, 1888.

PURVIANCE, GEORGE, *Surgeon*.—Detached from Cincinnati, Ohio, and ordered to Baltimore, Md., November 16, 1888

AUSTIN, H. W., *Surgeon*.—Detached from Chicago, Ill., and ordered to Milwaukee, Wis., November 17, 1888.

GODFREY, JOHN, *Surgeon*.—Detached from Louisville, Ky., and ordered to Milwaukee, Wis., November 14, 1888.

GODFREY, JOHN, *Surgeon*.—Detached from Louisville, Ky., and ordered to New York, N. Y., November 16, 1888.

MEAD, F. W. *Passed Assistant Surgeon*.—Detached from Baltimore, Md., and ordered to Norfolk, Va., November 16, 1888.

GUITÉRAS, JOHN, *Passed Assistant Surgeon*.—Detached from Camp Perry, Fla., and ordered to Charleston, S. C., November 15, 1888.

DEVAN, S. C., *Passed Assistant Surgeon*.—Detached from Savannah, Ga., and ordered to Washington, D. C., November 15, 1888.

URQUHART, F. M., *Passed Assistant Surgeon*.—Detached from Live Oak, Fla., and ordered to Dupont, Ga., November 3, 1888.

BROOKS, S. D., *Passed Assistant Surgeon*.—Detached from Wilmington, N. C., and ordered to Savannah, Ga., November 15, 1888

STONER, J. B., *Assistant Surgeon*.—Detached from Charleston, S. C., and ordered to Wilmington, N. C., November 15, 1888.

BAILHACHE, P. H., *Surgeon*.—Granted leave of abence for twenty days, November 24, 1888.

LONG, W. H., *Surgeon*.—Granted leave of absence for sixteen days, November 21, 1888.

MCINTOSH, W. P., *Assistant Surgeon*.—Granted leave of absence for thirty days, October 24, 1888

MAGRUDER, G. M., *Assistant Surgeon*.—Granted leave of absence for thirty days, November 23, 1888.

COBB, J. O., *Assistant Surgeon*.—Granted leave of absence for twenty days, November 20, 1888.

GEDDINGS, H. D., *Assistant Surgeon*.—Granted leave of absence for thirty days, November 1, 1888.

WYMAN, WALTER, *Surgeon*.—Detailed as a representative at the meeting of the American Public Health Association.

AUSTIN, H. W., *Surgeon*.—Detailed as a representative at the meeting of the American Public Health Association.

GODFREY, JOHN, *Surgeon*.—Detailed as a representative at the meeting of the American Public Health Association.

PROMOTIONS.

MCINTOSH, W. P., *Passed Assistant Surgeon*.—Promoted, and appointed Passed Assistant Surgeon, November 21, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, DECEMBER 15, 1888. NO. 24.

ORIGINAL ARTICLES.

PRELIMINARY REPORT OF AN OPERATION FOR THE FORMATION OF AN ARTIFICIAL PUPIL THROUGH THE SCLEROTIC COAT OF THE EYEBALL.

BY GEORGE STRAWBRIDGE, M.D.,
OF PHILADELPHIA.

IF reference is made to v. Hippel's article on a "New Method for Corneal Transplantation" (Graefe's *Archiv*, vol. 34, Part I., p. 108), it will be found that the author admits that this operation is only adapted to partial corneal leukoma (a condition, in my judgment, not warranting the operation). In fact, I should consider it never indicated if an iridectomy could be substituted for it, but in those cases in which the cornea has become opaque in its entire diameter, with adherent iris, and in the staphylomatous corneæ, the operation is not advised. Now, it is in these cases, and in others in which the natural passage of light to the retina is prevented by the destruction of cornea, iris, lens, and ciliary changes, that some operative relief is so much needed, and as yet no treatment has been proposed.

The vast majority of the blind are so from diseased conditions affecting the anterior part of the eyeball, and many of these eyeballs show good light-perception, showing that the nerve part of the eye has some vitality. The question arises, Can anything be done to help such cases that are now considered hopeless? I have performed the v. Hippel operation on two such cases in the past few months.

The first case was a man, æt. forty-four. The right eye was an atrophied stump, without light-perception, entire front of eye destroyed. Left eye: moderate atrophy of eyeball, cornea entirely destroyed and replaced by inflammatory tissue; iris and lens destroyed, moderate light-perception and projection; in this condition for twenty years (cause, purulent conjunctivitis), a hopeless case by our present methods. With v. Hippel's trephine I removed a central button of tissue, and went as deep as possible, until the oozing of the fluids from the interior of the eyeball caused me to stop, although opaque tissue still showed itself in the canal. A graft from a rabbit's cornea was placed in this opening, not with the idea of a visual result—an impossibility, by reason of the fact that opaque tissue remained in the canal—but to ascertain if union could take place under the existing conditions, of a free oozing of the eyeball fluids. Rapid union of this graft resulted, but it soon became opaque, and so remains.

The man thinks his eyesight improved; but, if so, it is due to the fact that so much opaque tissue was removed by the trephine as more than to equalize the opaque corneal graft. Of course, it will be said that this was not a proper case for the v. Hippel operation; but, unless this operation covers more than the removal of a partial corneal opacity, it has no field at all.

The second case was a child, æt. four, with a large anterior staphyloma of both eyes, due to corneal ulceration and destruction following an attack of measles. Here, again, was a case of loss of cornea, iris, and lens, but good light-perception was present in the left eye. Through the left staphyloma a central opening was made by the v. Hippel trephine, and extended inward until a dark ground showed itself through the thick inflammatory tissue, and a rabbit's corneal graft inserted. This quickly became adherent, but, unfortunately, also opaque.

These two operations convinced me that it was an absolute necessity to trephine inwardly until a transparent media was reached, even if it was necessary to enter to a considerable depth.

The next indication to be met was, How to block up such an artificial opening with a transparent media, one which would not be washed off by the oozing eyeball fluids, and one which would remain transparent (a rabbit's corneal graft became an impossibility under such circumstances). The idea occurred to me that the conjunctiva close to the cornea, in a normal condition, is nearly transparent. Then why not use a conjunctival flap from that part of the eyeball? This would also have the great advantage of a broad base to support it in position and keep it alive, and this free end could be stretched across the new opening, and held in position by stitches.

As to the best position for the artificial opening? Through the anterior part of the eyeball (the natural seat of the cornea) would be found the products of the former inflammatory attacks, and this would increase the risk of closure of the new opening. The advantage would be central vision. But why not boldly *trephine through the sclerotic coat posterior to the ciliary bodies?* Here the tissues would be more normal, and the chance of a clear vitreous greater; but, of course, eccentric vision. My experiments were made on rabbits' eyeballs.

Summary of experiments.—The eyeballs were washed with a biniodide of mercury (Panas) solution, and a two per cent. solution of cocaine applied. In-

struments were washed with alcohol. *Six operations* for artificial pupil through the *sclera*, posterior to the ciliary bodies, were made, the conjunctiva first being dissected away and inverted, and the rectus muscle divided. A v. Hippel trephine 4.5 mm. in diameter was used to make the scleral opening in four of these operations, in one of which two-thirds of the opening was made through the ciliary bodies without any additional irritation. This was interesting, as in the human eye a ciliary traumatism is looked on as generally fatal to the integrity of the eyeball, and the query would be whether a clean cut through the ciliary bodies, as an operative procedure, would not show a different result from a lacerated wound. In two operations I used a Graefe cataract knife to make two incisions in a triangular opening, the third side being cut out with the scissors (the trephine not being in order). These two pupils were of about the same area as the other four.

In all, there was a moderate vitreous escape, and in two a slight hemorrhage in addition. The conjunctival flap was then stretched over the scleral opening and stitched to the conjunctiva at the corneal border; the effort being made to have the conjunctiva nearest to the cornea to come over the opening on account of its greater transparency. The animal was then allowed to run without further care. All healed equally well. The conjunctiva for a few days was moderately swollen, but the eyeballs remained without reaction. Week by week the conjunctiva covering the scleral opening has become more transparent, and at time of writing (an average of five weeks after operation) the scleral openings show themselves like dark pupils, covered by a three-fourths transparent conjunctiva through which light can be reflected; there is no tendency in these openings to close, and the improvement goes on steadily as regards increase of the transparency of the pupil and conjunctiva. If the conjunctiva becomes again as transparent as it was in the normal condition (and there is every indication that it will be so), surely a most serviceable amount of vision will be obtained through these scleral pupils. The fact also that the eyeballs remain healthy is a strong point as to the feasibility of this operation on the human eye.

It is, therefore, fair to say that these experiments (as far as rabbit's eyes are concerned) prove that a large scleral pupil can be maintained without the least tendency to contract, and that the conjunctival covering will attain again to the normal transparency, and through this opening light can be reflected; also, that the eyeballs are not damaged.

In one of these operations, at the end of the fourth week, when the scleral pupil showed itself as a dark opening, covered with a three-fourths transparent conjunctiva, I purposely dissected the new conjunctival flap away from the scleral pupil to determine the effect of depriving it of this covering. No vitreous escaped, but a lymph covering was in a short time spread across it and so greatly decreased its transparency. This would indicate that the conjunctival flap must be considered as a permanent covering.

Two operations for artificial pupil were made through the *entire thickness* of the centre of the *cornea*, with the same trephine. In one case the lens was injured and there was also an iris prolapse into the wound. This pupil was covered by a long narrow conjunctival flap taken from along the upper corneal border, and held in position by stitches through the cornea at the edge of the circular opening, giving the appearance of a narrow pterygium, stretching from above down to the centre of the cornea. The slight reaction was quickly over and the eye is now entirely free from irritation (six weeks after the operation) and in a normal condition, excepting a partial lens clouding and an iris prolapse, due to the operation. The conjunctival flap remains firmly attached to this corneal pupil, but is opaque, and will probably remain so, due to the fact that the conjunctival flap is not so well nourished.

The second corneal pupil operation was through the centre of the entire cornea also, and a similar long conjunctival flap was stitched over the opening, the stitches going through the edge of the cornea at the circular opening. This operation is following the course of the other, and will probably show the same result. In this case a more severe reaction was noted.

Summary of corneal pupil operations shows that a large corneal pupil can be made and covered by a permanent conjunctival flap, but this flap will probably remain

I now considered that I was justified in performing this operation on the human eye, particularly as I was attacking an eye utterly hopeless under our present methods. In trying the v. Hippel trephine on an enucleated human eyeball, I found that it had not sufficient power to penetrate the sclera and, therefore, had a spring of greater strength inserted. This also was insufficient, and I then tried as a motor power the dental engine with trephines of 4.5 mm. diameter adapted to it. This was found more delicate in its manipulation and in every way satisfactory, and was used in the two following operations:

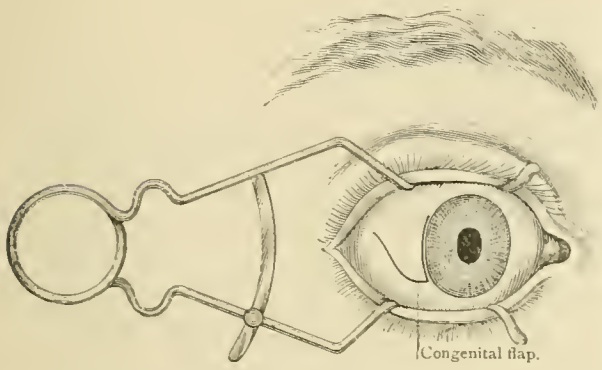
On December 4th I made two scleral pupils on the human eye.

Case I. was that of a man, æt. forty-six, who had lost his right eye in boyhood by an accident, and this had been removed four years ago as an irritable stump, producing sympathetic irritation. The left eye had been losing sight for the past ten years,

and for the past four years had only light-perception, due to the sympathetic irido-choroiditis with cataract formation. Four months ago I attempted the lens removal, and had a violent escape of fluid vitreous at the stage of iridectomy, at which point the operation was stopped. Inflammation followed, with complete pupillary closure later on. Iridectomy was attempted without result, and the eyeball slowly began to atrophy with a —2 tension at the present time of operation.

The man was placed under ether, and a conjunctival flap (vide Fig. 1) was made by grasping the

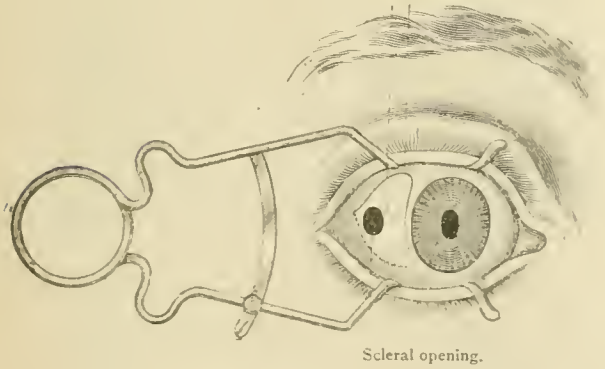
Fig. 1.



conjunctiva with forceps and making a horizontal cut close to the outer lower quarter of the cornea,

Fig. 2.

Insertion of tendon of rectus externus. Congenital flap inverted.



The dotted line represents the conjunctival flap sutured in position.

and then extending this upward along the outer corneal border; a third cut from this horizontal incision upward and outward, extending to the upper border of the tendon of the rectus externus, completed the flap. This was inverted and the rectus externus tendon severed; a forceps then firmld grasped the insertion of the rectus tendon any pulled the eyeball inward and held it steady. The trephine knife (having 4.5 mm. diameter and worked by a dental engine) was then placed on the sclera behind and close to the rectus externus tendon insertion, so as to avoid the ciliary bodies (vide Fig. 2), and a moderate rotation caused it to cut its way quickly into the vitreous. The button of the sclera was found clinging to the trephine on its withdrawal, and a quantity of straw-colored fluid escaped from the eyeball. The conjunctival flap was quickly placed over it and held by three stitches in its place; and a light bandage of cheese-cloth keeps the eyeball quiet, and thus far (six days) no reaction has followed whatever. Moderate swelling of the conjunctiva shows itself, but this already is rapidly passing away, and the dark scleral opening begins to appear.

Case II. was that of a child, æt. four and one-half years; has lost both corneæ from ulceration following measles, three years ago; quite sizeable staphyloma corneæ are present, and it is thought that light-perception exists in the right eye.

A similar scleral pupil was made in the right eye, the patient being under ether, and in this case healthy vitreous escaped in moderate quantity. At this time (six days after the operation) no reaction exists. The staphyloma has entirely flattened, and the dark scleral pupil is seen through the still thick conjunctiva.

It is to be noticed, in the rabbit experiments, that a lapse of at least two weeks was needed before the conjunctiva became sufficiently thin to discern the scleral opening through it, so that no immediate result is to be expected until sufficient time has been given to allow a partial return of the conjunctiva to its normal condition.

Scope of the scleral operation:

1. As a means of making an artificial pupil in eyeballs now considered hopeless: for the purpose of giving vision.

2. It will be probably an efficient means of reducing staphyloma anterior by making a permanent opening, through which omosis of the eyeball fluids may go on without injury, and in this way prevent intra-ocular pressure.

3. As a means of combating glaucoma in the chronic stages, by allowing free osmosis through the conjunctiva and scleral opening.

4. It may be useful in retinal attachments, by its ability to drain the retinal sac of its fluids through the scleral opening, and by keeping up osmotic action, lessen the risk of a re-separation.

In answer to the natural inquiry, How dangerous is this operation to the integrity of the eyeball? I will say that the rabbit experiments show that the risk is small, as no eye was damaged; and considering that the opening is made through a part of the eyeball posterior to the ciliary bodies, it is most probable that the operation will be attended with but little risk. But even taking the opposite view, it is always to be remembered that the eyeballs on which

the operation would be performed are, as a rule, such desperate cases that the element of operative risk will not give rise to anxiety.

In regard to what may be expected from the artificial pupil through the cornea—and by this is meant a pupil extending inward through all opaque tissue until clear vitreous is reached, at the present time I am inclined to believe that the conjunctival covering will, probably, not become transparent enough for any amount of vision through it, as it must necessarily be of sufficient length to reach to the corneal opening; and this means a larger dissection and a more narrow base to it: also, the risk of closure of the artificial opening is greater, as it passes through the seat of largest intensity of inflammation. But it may be found that actual experience on the human eye will give a different result.

I would have preferred to postpone this preliminary notice until I had a larger number of operations, with their results, to report; but the interest excited is so great, and I have been so beset by inquiry for information by members of the medical profession, that I take this method of giving my results as far as I have obtained them.

To my friend, Dr. Shaffner, who has kindly assisted me in my experiments on the rabbit's eyes, I make my acknowledgments.

FORCED RESPIRATION.

A Report of Six Cases, showing its Effects on Narcotized Human Subjects, and its Adaptability in Cases of Drowning and Shock.[1]

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The term *forced respiration* may be unfamiliar to many physicians; the reasons for its introduction are given. The term *artificial respiration* has been applied to all artificial methods alike, as those of Marshall Hall, Sylvester, Howard, and others, which depend for their success upon the movements of the limbs or body of the patient, supplemented usually by pressure of the thorax on the part of the physician; those in which tubes and mouth-pieces are used, and the air supplied by bellows of different forms, and the methods used on various animals in the physiological laboratory, in which the trachea is opened to supply the air for respiration. To the latter method, which, in operation, requires the forcing of air into the lungs by mechanical appliances, I have heretofore suggested the term *forced respiration*, to distinguish it from the ordinary methods of *artificial respiration*. The necessity for a distinctive term and its appropriateness will be conceded, when it is noted that respiration has been successfully carried on in man by these forcible means for many hours after artificial respiration has proved futile. The operations are so different in application, that a distinctive term is absolutely required to prevent confusion.

For the history of forced respiration and description of original apparatus used by the author in the following cases, see forthcoming (1888) volume of *Proceedings of New York State Medical Association.*

Case I.—At 12.30 A.M., July 23, 1871, was called to attend Mr. B. Found the patient in a semi-conscious condition. His wife reported that he had been drinking heavily. His excesses induced him to try chloral to produce sleep, but finding this unsuccessful he added twenty grains of morphine with the following result: The drug was taken late the preceding afternoon, so that sufficient time had elapsed to permit complete absorption.

When first discovered, he was breathing stertorously, and was with difficulty aroused. Emetics, followed by cathartics, were administered, producing vomiting. To keep the patient awake, he was dressed and two attendants walked him around the block. At each round atropia was administered. On the fourth round his limbs gave out, stertorous breathing was renewed, and he was carried into the house and laid upon the floor, as I believed, to die.

3.30 A.M.: Respiration failing, artificial respiration (Sylvester) was employed, and kept up at intervals without apparent benefit to the patient. I notified the family that the patient could not live. The last rites of the church were performed, a bed was prepared in the front parlor, the patient laid upon it to die, the data for the death certificate were obtained, and after confirming my opinion that death was imminent and certain, I left for home at five o'clock in the morning, completely exhausted. The pulse ranged from 180 to 200; respirations at 4 A.M. five per minute, and at 5 A.M. intermittent, or with a long intermission, followed by a few spasmodic respiratory efforts, and then apparent inanition for a time.

After a sound sleep at home, I was awakened about 8 o'clock A.M., by a call from Mrs. B. Dr. F. R. Campbell, who, through illness, was unable to respond to an early summons from Mrs. B., called at 8 o'clock, and finding Mr. B. still alive, sent for me.

On reaching the house, I found the patient with respirations not more than one per minute, and the pulse at the wrist difficult of detection. The extremities were cold, face cyanotic, pupils still contracted. My associate suggested more atropia hypodermatically, to which I assented. Together we repaired to a drug store near by, and had some

[1] Portion of a paper read before the New York State Medical Association, New York City, October 9, 1888.

powders prepared, but on our return found the pupils *widely dilated;* it is needless to say *no more* atropia was administered. The sudden dilatation of the pupils is a frequent occurrence in the *last stages* of opium poisoning, and is indicative of general muscular paralysis; it is, also, known as the "dilatation of asphyxia."

Dr. Campbell remarked: "We can do nothing more now." I agreed with him; but recalling the case of Mr. Dyke, and my views then entertained, I mentioned to the doctor my conviction that Mr. B.'s life might be saved by opening the trachea, placing a tube in it, and keeping up the respirations with suitable apparatus, until the poison could be eliminated. I informed him that I had the apparatus used on dogs in the laboratory of the college at my residence near by. He offered to assist, if I would make the experiment. I quickly obtained the apparatus, and on the way asked Dr. George H. McMichael to assist in the operation. The hemorrhage was considerable, but was controlled before incising the trachea. Difficulty was experienced in passing a ligature about the trachea and tube to prevent the air from passing up the throat; when accomplished, we were ready to begin the forced respiration. The blood coming from the incision was a dark coffee color, indicating an extreme venous condition. No respiration had been made for some time, and the dark blue tinge of the face had materially increased.

We began the forced respirations, which resulted in producing some remarkable physiological changes, which are recounted in that portion of this article relating to the effects of forced respiration on narcotized human subjects. After the first inflation of the lungs not the slightest expiratory effort was made, indicating not only the paralyzation of the respiratory centres, but the loss of elasticity in the lung tissue, a most important, if not the most important, factor in expiration. These facts are fully explained in that portion of the article just referred to. In the course of time the patient revived and began to move uneasily about, starting hemorrhage through the loosening of the tube in the trachea. Three soldiers boarding in the house were quickly summoned, and performed efficient service in restraining the patient.

At twelve o'clock, mid-day, after the forced respirations had been under way *two and one-half hours,* an ordinary tracheotomy tube was substituted for the tube of the apparatus, and the patient allowed to breathe for himself.[1]

The *second* case occurred September 20, 1887, and was cited in the *Lancet* of October 15, 1887. Dr. Länger, of the Vienna Hospital, took an overdose of morphine. An incision was made in the trachea, and the patient's life was saved by *forced respiration.* The operation was made after the reports of my first case (read before a section of the Medical Congress at Washington) had appeared in the medical journals.[1]

CASE III.—Mr. J. A. V., aged forty-three, took two ounces of laudanum and some chloral about 9 or 10 P. M., Saturday, December 10, 1887. At midnight, his wife heard him breathing heavily; she tried unsuccessfully to arouse him, and sent for a physician.

Dr. Lawrence G. Hanley was the first to respond, and was shortly followed by Dr. Jacob Goldberg.[2] The condition of the patient at this time, 1.15 A. M., indicated that a large dose of some powerful narcotic had been taken. Breathing stertorous; pulse 128; respirations 6, and pupils contracted. At 1.40 A. M., Saturday morning, I was called and found the physicians employing Sylvester's method of *artificial respiration,* and at their request assumed entire charge of the case.

2.20 A. M.: Natural respirations ceased, or would last but a short time without *artificial respiration.* Pulse 72 to 84, indicating satisfactory oxygenation of the blood; however, the notes[3] taken at the time show that the natural respiratory efforts were irregular, deficient, and difficult to count.

Their inefficient character, even when supplemented with the *artificial respirations of Sylvester,* was indicated by gradually marked increase of cyanosis. Previous to this, when noticing the good results of the *artificial respiration,* I informed the physicians that this would be a good time to answer effectually those who believed that *artificial respiration* would accomplish what forced respiration would in cases of deep narcosis from poisons which act upon the respiratory centres. I informed those present that if the life of the patient could be saved by *artificial respiration,* or any other *known* means, my apparatus *should* not be used.

From 2.30 to 2.45 A. M.: Natural respirations ranged from 7 to 15 per minute, but were "shallow," so that little good was effected by them. Pulse 120.

3.25 A. M.: Respirations failed. Owing to evident signs of heart failure, it was considered by all the physicians present that the life of the patient demanded the application of *forced respiration.* Time was given to demonstrate the uselessness of *artificial respiration,* and it was feared the patient might succumb before the *forced respiration* could be applied.

3.40 A. M.: Tracheotomy made; blood venous; Dr. Hanley remarked that it was "ebony-colored."

4.05 A. M.: *Forced respirations* begun. In a short time, the pulse became stronger, and was reduced to 78 per minute.

5.30 A. M.: Pulse 102.

5.45 A. M: Pulse 64.

6.25 A. M.: The patient, *previously insensible,* opened his eyes, stared in a half-dazed manner,

[1] The analysis of the urine first drawn from Mr. B. gave clear evidences of morphia. A quantitative analysis is now being made by Dr. John A. Miller, of Niagara University, Buffalo, as a matter of interest.

[1] November 12, 1888: Have just received from Prof. Böhm, of Allgemeines Krankenhaus, Vienna, a full report of this case.—G. E. F.

[2] Dr. Samuel Goldberg was present later in the case. Also a number of medical students.

[3] This case is reported from full notes taken during its progress by the different physicians present.

raised his head from the pillow, and recognized Dr. Goldberg by voice only.

6.45 A. M.: First noted that when *forced respiration* is discontinued not the slightest attempt at breathing is made by the patient, even when the cyanotic condition is extreme.[1]

In one or two instances the *forced respirations* were unintentionally kept up when the patient was swallowing water; the glottis being opened at this time, it entered the lungs and was subsequently coughed up and passed out of the opening of the valve of the apparatus.[2]

7 A. M.: Pulse 96.

8.15 A. M.: Pulse 108. It was found that the patient could breathe for himself, but only for a short time, and the *forced respirations* had to be continually kept up.

9 A. M.: The trachea tube not being secured tightly in the trachea, permitted quite an amount of blood to pass into the lungs, and the air to pass into the mouth, so that the lungs were not thoroughly inflated at each respiration. This blood gurgled ominously at each inspiration. With a curved needle another ligature was passed and tightened about the trachea and tube. The *forced inspirations* following, markedly improved the action of the heart.

As the poison became more completely incorporated with the blood, through absorption, the effect of even a short stoppage of the *forced respirations* was indicated in a weaker action of the heart. At one time, the rubber tube connecting the respiratory valve with the trachea tube became almost completely clogged with clotted blood. It was removed and cleaned, as was also the inner tube of the tracheotomy tube a number of times. Digitalis was given, also atropia, one-eighth grain at one time, and smaller doses also. No dilatation of the pupils took place at this time.

The question of keeping up the *forced respiration* when there seemed to be no prospect of ultimate recovery of the patient, was *seriously* discussed. I was urged to discontinue the respirations on account of the case being considered hopeless. At one time, I stopped them for a longer period than usual, thoroughly discouraged and tired. The man was not dead, and we *had to keep it up*.

11.30 A. M.: Patient drank some brandy and water; vomited. Case was hopeless.

12 M.: Pulse 117. Grain $\frac{1}{75}$ atropia administered hypodermatically.

12.10 P. M.: Face cyanosed; efforts to breathe made; twitching of toes; respirations not supplying enough air.

12.40 P. M.: Owing to a solution of atropia being placed on or in the eyes, the pupils gradually dilated.[3] Pulse 126.

12.55 P. M.: The patient, who had become unconscious for a short time, regained consciousness, and drank some water. Pulse, after drinking, 168, weak and flickering. After this, more air was administered, and three movements of the bellows used for the inspirations instead of two, as formerly.

3.20 P. M.: Temperature 100.5° Fah.

6 P. M.: Pulse 120.

6.15 P. M: Respiration natural, 14 per minute. Patient began breathing for himself. This lasted fifty-five minutes, when the respirations lowering to 8 per minute, *at the request of the patient* the *forced respirations* were again proceeded with.

9.15 P. M.: Pulse 120: respirations 14, natural; becoming shallow, they were supplemented with the *forced respirations*.

11.30 P. M.: Pulse 100.

December 11, 1887, 12 Midnight.: It is now twenty hours since the forced respiration were begun.

1.05 A. M.: Pulse 128, strong. The patient has been breathing for himself for the last four hours, but has *now requested* that the *forced respirations* be used for a time. Since then, he has breathed for himself. For over fourteen hours he could not be left to breathe for himself even for a half-minute, without evident discomfort and danger, viz., between 4 A. M., 10th inst., and 6.30 P. M., 10th inst., and for nearly seven hours thereafter the *natural* had to be supplemented by the *forced respirations*.

4 A. M.: Pulse 117. Although olei tiglii gtt. v have been administered, no movement of the bowels has taken place. Nutritive drinks and enemata of water, soap and water with oil and stimulants, given also.

Every six or eight hours catheter used. Up to 12.30 A. M., 11th inst., nearly twenty-four hours after the patient was first discovered, and some twenty-seven hours after two ounces of laudanum had been taken, not more than six ounces of urine had been drawn from the patient. This large amount of poison (two ounces) had been undergoing the round of the circulation, producing its maximum effect on the whole system. The left arm was partially paralyzed, the brain congested.

Between 3 and 4 A. M., 11th inst., the bowels moved for the first time. At 7 A. M. the patient left the table, without assistance, to use stool. At 9 A. M., the tracheotomy tube was removed, wound plugged antiseptically, and patient put to bed.

Although very seriously ill for three or four days following, no serious lung difficulty set in; the patient has fully recovered.

CASE IV.—Julius B., of Lockport, N. Y., aged forty-five years, nervous temperament, of a naturally lively disposition, was subject, through ill-health and mental suffering, to spells of melancholy, which were aggravated by several serious reverses in business. He was of medium height, weighed about one hundred and thirty-five pounds, and was in poor condition to withstand a terrible physical ordeal. January 24, 1888, he left home for Buffalo, having previously obtained a two ounce vial of laudanum. On his arrival at Buffalo he put up at the Continental Hotel, complained of not feeling well, ate very little supper and retired to his room. This was the

[1] See effects of forced respiration on narcotized subjects further on.

[2] This indicates, in part, the value of the application of the apparatus in cases of drowning, and also that it would be objectionable to pass a tube into the larynx by way of the buccal cavity when the elimination of poison is important, as liquid, in swallowing, would be apt to enter the lungs.

[3] This may not have been judicious, but was done under the belief of all the physicians present that the patient could not recover.

last time he was seen, until he was found next day at 3 P. M., to all appearances dead (so reported).

The first physician to arrive at the hotel was Dr. Luther Phillips, who, on examination, gave up the patient. The physicians from the Fitch Emergency Hospital, Dr. George E. Penrose in charge, next appeared and administered brandy and ether subcutaneously. Drs. William A. Hoddick, Carlton R. Jewett, Herman Mickle, John D. Flagg, and several others subsequently were present during the progress of the case. They, without exception, gave up the case as hopeless. Coroner Kenny was summoned, and before leaving his office telephoned to undertaker Rodney to go to the hotel with a coffin, which he did.

The two ounce vial of laudanum was found empty; the throat of the patient was cut, severing the trachea and anterior jugular vein; it was found also that the left arm had been incised with a razor so as to expose clearly, without opening, the basilic vein. At this time the patient was making a faint gasp once in about ten seconds and breathing through the hole he had made in the trachea.

I was called about 5 P. M. On arrival found the corridor and bed-room filled with physicians and laymen, the patient lying on the right side of the bed. To indicate the extent of hemorrhage, it may be mentioned that the right side of the over- and under-shirt, the shirt sleeves to wrist, right end of the pillow, and side of the mattress were literally soaked with coagulated blood. A tall slop-jar at head of bed was half-full of blood and water. The pupils were contracted; face pallid; an occasional gasp indicated that life existed. No pulse at wrist, and fluttering movements of heart on auscultation; skin cold; patient unconscious, had an exsanguinated cadaverous appearance. The physicians had ceased their efforts at resuscitation.[1]

My first marked interest was in noting that the incision in the trachea was just suited to my tracheotomy tube, which I immediately inserted, causing a reflex inspiratory spasm. Within one minute from the time I entered the room I was practising forced respiration upon the patient. Within a few minutes the cyanotic hue slowly passed from the face. In about three hours, 8 o'clock P. M., the pulse could be detected at the wrist and the patient showed signs of returning consciousness. Great quantities of stercoraceous matter passed frequently from the patient. At 9 P. M. patient became fully conscious of his condition and surroundings. Contraction of the pupils continued. When forced respiration was discontinued an occasional attempt at respiration was made; at no time, however, during the twenty and a half hours the instrument was in steady use, did he make more than two or three attempts at respiration without it.

As he gradually became weaker from continued movements of the bowels and frequent attacks of vomiting, attempts were made to nourish him. The most easily assimilable substances were rejected. Milk and lime-water, peptonized liquids, liquid and powdered peptonoids, iced champagne, brandy, etc., were used, but the stomach would not retain them. Vomiting continued; the patient approached the stage of collapse; brandy, hypodermatically, frequently given without marked benefit. The action of the heart was of a bounding, uncertain character, produced by deficiency of blood upon which to work. At one time stercoraceous vomiting set in; in fact, a most deplorable condition existed. It was decided to attempt the introduction into the circulation of a saline fluid by the transfusion method. I repaired to the Fitch accident hospital, secured the apparatus and assistance of Dr. Penrose, who, with Dr. Mickle, opened the conveniently exposed basilic vein of the left arm, introduced the transfusion canula and allowed about six ounces of the fluid to mingle slowly with the circulation.[1] No apparent change was noted in the condition of the patient from the injection; the forced respiration was continually kept up, and the life of the patient depended upon it, as all other means would have proved futile without it. At this time no pulse at the wrist could be detected for fifteen minutes at a time.

Continued the work through the night with the aid of my class of students from the college and a number of physicians; toward early morning the opinion prevailed that the case was hopeless.

I was urged to discontinue the work of resuscitation, on the plea shared by all, that it was only prolonging the misery of the patient, and the case was hopeless. I urged, as in my second case, that a physician was not justified in giving up until life was extinct, and kept the forced respiration under way. Attempts at nourishment by the stomach had been discontinued for a time after the stercoraceous vomiting. The nourishment of the patient, however, had become a matter for serious consideration, and at the suggestion of Dr. C. R. Jewett, half teaspoonful doses of Cibil's fluid extract of beef diluted with a little carbonic acid water were administered. This was the first substance to be retained; dose repeated, increased, and at last the patient showed signs of improvement.

Some twelve hours after we had been at work, the satisfactory result of forced respiration, as a means of breathing for a human being, was demonstrated in the easy, passive condition of the patient. During the forenoon the effect of the narcotic gradually passed away, the pupils dilating more and more. The condition of the patient was such, however, that he could not breathe for himself for any time without evident discomfort, and the forced respiration had to be kept up. Noon passed, and yet the patient could not be left to breathe for himself. At 1.30 P.M., however, nearly one full day (twenty and one-half hours) after forced respiration was begun, Mr. B. began to breathe for himself. In a few hours he became so fatigued that he begged to have the

[1] Dr. Wm. A. Hoddick reported the condition of the patient at the time of my arrival as follows: "Skin cold; cadaverous appearance; lips colorless; the pallor of death apparent; extremities cold; pulse almost imperceptible; only a slight fluttering of the heart could be discovered; eyes insensible to light, pupils completely contracted; but little blood in the body."

[1] The formula for this fluid was as follows: "℞.—Sodic carb., grs. j; sod chloride, grs. vj; ft. chart. aquæ, ℥ij, M. xxx. Misce Inject one to four ounces.

forced respiration resumed, and the little instrument was again called into action, quieting and easing the patient again. Several times was this done before he continuously breathed for himself, thus making the use of the instrument to cover more than a day before it was laid aside for good.

Toward evening the patient was transferred to a warmer and better room. Under careful treatment he rapidly improved, but complained of constant pain in his chest. It was feared that pneumonia would set in as the respirations were somewhat rapid. It did not, and there was nothing, as we will see, to indicate that the lungs were *unfavorably affected* by the long-continued forced respirations. Within five days after the operation the patient was transferred to the hospital of the Sisters of Charity, and his temperature was normal and pulse 96. The pain in the chest was caused by the *hypodermatic* injections given at a time when the circulation was so inactive in the surface capillaries that gangrene was produced by them. The poor fellow suffered for months after the operation from this cause. The greater portion of the left breast sloughed down to the ribs, and in the right thigh an abscess, produced from the same cause appeared, which, when opened on the 20th of February, gave out a pint of pus. There is, then, a possibility of overdoing the hypodermatic treatment where a large quantity of blood has been lost.

I do not hesitate to state as my belief that Mr. B. would have been in condition to leave the hospital within two weeks of the date of the operation had it not been for the results produced by the hypodermatic medication. At this time, following it, his throat was closed up and in good condition. He was able to walk about and do light work long before he left the hospital, and when he did so was in better physical condition than he had been for years.

Regarding my first three cases, there is no question as to the result had any other known means been tried to save them. Forced respiration alone is to be credited with the saving of these lives to future usefulness. To demonstrate beyond question the thoroughness of the work accomplished, at my request these patients, Messrs. Burns, Van Orden, and Baere, all in good health, appeared before the Western Division of this Society in Buffalo, May 8th of this year, where I gave a preliminary report upon the subject of this paper.

To the insurance companies this work was a boon, as it saved to them some $23,000 assurance.

With all associated in the cases, I stand equally surprised at the results.

The following series in many respects are not so interesting as the first three, but still presenting the influence of forced respiration in these serious cases in a most remarkable light.

CASE V. is taken from the records of the Emergency Hospital, where it occurred, and is reported by the house physician, Dr. J. F. Mulherin. Hospital case No. 1000. Peter C., aged eighty, United States, admitted May 18, 1888, 8.30 P. M. This man was brought in an ambulance from a house where he was found in a dazed condition. Patient had stated to friends at this place that he had taken laudanum, ℥j; empty bottle shown to ambulance attendant. On admission patient unconscious, pulse full and strong (84 per minute), respirations about 10 per minute, pupils contracted to pin points.

Emetics administered, atropia gr. $\frac{1}{100}$ hypodermatically, and catheterization at 8.35 P. M.; repetition of atropia gr. $\frac{1}{100}$ in ten minutes. Artificial respiration, Sylvester's method. At 9 P. M. heart failed and respirations about 3 or 4 per minute; respirations gradually became imperceptible, atropia gr. $\frac{1}{100}$, also brandy and digitalis given hypodermatically.

At 11 P. M. Dr. Fell called and tracheotomy with forced respiration determined upon. Present, Drs. Fell, Heath, Mickle, and Mulherin. Trachea opened and tube inserted by Dr. Heath. At 10.25 P. M. forced respiration commenced: patient seemed to revive; pulse became fuller, was irregular, color in face returned, and at 12.15 A. M. patient first opened his eyes. Stomach-tube introduced to wash out contents at 12.30. Injections of soapsuds per rectum at 1 A. M. These were found inefficient, and gtt. ij olei tiglii administered at 1.15; urine again drawn at 1.45. Signs of returning consciousness at 2.30. Patient opened his eyes and lifted his hand. Between 2 and 3 condition good, pulse full and regular; vigorous slapping of face, yelling in ears elicited no response. 3 A. M. pulse 90. 3.45 A. M. patient suddenly raised his arms and attempted to speak. At this time the forced respiration was discontinued, but patient refused to breathe. At no time since the operation was begun had the patient been cyanotic.

At 4.15 A. M. patient again threw his arms about, and, in answer to a question, said he was "awake." Hæmostatic forceps removed from the neck after the vessels were ligated; slight hemorrhage. Respiration continued. 5 A. M. patient opened his eyes, became somewhat convulsed, and again relapsed into a state of unconsciousness. Two drachms of nitre given by the mouth and stimulants through the air-heating section of the apparatus. At 5.15 A. M. bellows working at the rate of 108 movements per minute; patient by this means receiving 21 respirations to the minute; pulse good, and color of face normal. 5.20 air-heating apparatus again used. 5.40 heated air discontinued. At 5.50 ℥ij urine drawn. 7 A. M. face and hands more cyanotic; pulse 90, temperature 99½° F. 7.30 pulse growing weaker, patient somewhat cyanosed. 8.20 heart failing. 9 A. M. pulse 88. 9.10, heart very weak. 9.30 pulse varied, becoming alternately strong and weak. At no time during the operation has the patient been able to breathe of his own accord. At 10 A. M. pulse 60, temperature 98° F. Peptonized beef extract given per rectum. 12.45 P. M. patient made a few convulsive efforts to breathe, again relapsed into unconsciousness: pulse becoming very weak and feeble. Patient grew pale; skin cold. Complete cessation of pulse at 1.10. Patient dead. Forced respiration discontinued and instrument removed at 1.13 P. M.

In this case the patient was kept alive by the forced respiration for fourteen hours and ten minutes, and it is reasonable to infer that his life was prolonged at least twelve hours longer than it could have been by any other methods known.

Case VI.—May 26, 1888, I was called to the residence of H. C. F. Found his eighteen day old infant held by a nurse in a tub of warm water; body deeply cyanosed. An occasional gasp indicated that life still existed; pupils contracted, reflexes absent. Inquiry elicited the following history: Dr. "Blank," an old and respected homœopathic practitioner of Buffalo, had been called to prescribe for the child. He took out of his case a powder containing morphia sulph. gr. j. By mistake he gave it to the nurse, directed her to give it to the babe, at the same time thinking he had replaced it in his case and handed her a harmless powder in its stead. Some time after the physician had left the house the nurse called the child's mother's attention to the superscription on the powder, morph. sulph. gr. j, and with the belief that all medicine was harmless, thinking it was only a sleeping powder, the fatal drug was placed upon the tongue of the little one at 12.45 P. M. and all absorbed.

At 2.30 P. M. the child was discovered in convulsions, a physician, Dr. A. M. Curtis summoned, and the usual steps taken to resuscitate. When it is considered that the quantity of morphine taken was equivalent to about seventy doses for an infant of this age, it appeared a hopeless task. From 2.30 until about 4.30 P. M. artificial respiration was used with little benefit. It was nearly 5 P. M. before I arrived at the house, and with difficulty only to be appreciated by experience I made tracheotomy. Previous to the trachea being reached respirations would cease, by placing my mouth over the nose and mouth of the babe and forcibly blowing, the lungs were inflated, resulting in keeping up the action of the heart until the trachea could be irritated.

Irritation of the trachea followed by incision seemed to stimulate the respiratory centres for some time, but, as the case was approaching a crisis, at last a small-sized catheter, one-eighth of an inch external diameter, was used to make connection with the trachea, and by an increasing series of larger tubes this was connected with the tube from the air-valve of the forced respiration apparatus. About 6 P M. the forced respiration was begun, Dr. A. M. Curtis giving valued assistance in holding the small tube in the trachea. In fifteen to twenty minutes the cyanotic condition passed away; child steadily improved for an hour, when the cyanosis returned. Examination revealed that the tube had slipped out of the trachea. After replacing it, forced respiration was continued, and the natural hue of health returned. The pulse improved, ranging for a time up to 134 per minute. Drs. W. H. Heath and George W. T. Lewis were called in to assist. Natural movements of the limbs returned, reflexes were again established, the limbs moved, bowels acted freely, and eight or ten natural respirations were taken. Hopes for recovery were almost entertained from the remarkable changes produced by the forced respirations, but at 9.10 P.M. pulsations indicated heart failure, and at 9.30 P.M. the heart ceased beating.

In this case, no less than in those preceding, the result of forced respiration was remarkable. The infant only eighteen days old had for five and one-quarter hours been subjected to the influence of one grain of morphine, in an asphyxiated condition for at least four and one-half hours, thus weakening the muscular tissue of the body. Under forced respiration life was retained, with the result mentioned, for three and one-half hours. If forced respiration had been instituted within the first two hours, it is probable the result might have proved different.

EFFECTS OF FORCED RESPIRATION UPON NARCOTIZED HUMAN SUBJECTS.

Observations obtained from various sources and the practice of forced respiration upon animals have given us a comparatively full knowledge of the physiology of respiration. The result of the same operation in the cases reported will, I think, add much interest to the subject, emphasize some points, and confirm others obtained by observation on the lower animals.

I present the conditions observed beginning with my first case, Mr. B. It will be remembered he had taken morphia, grs. xx. When forced respiration was first applied the patient was cyanotic. The effect of the respiration was observed much sooner on the heart than on the lungs. The change from the venous to arterial state of the blood was first noticed; the pulse at the wrist became stronger and quite regular some time before the attempts at respiration were made by the patient. Forced respiration was under way some twenty minutes before any attempts at breathing were made by the patient. A long interval elapsed before additional attempts were made. The ruddy hue of health returned to the face, and the first attempts at natural respiration were indicated by two or three quick, hurried movements of the lungs. These subsided and without both forced inspiration and expiration the patient would have quickly succumbed.

Sensibility was returning as indicated by reflexes of the ocular muscles. The next feature was movement of the limbs followed by one of the arms. Shortly after the eyes opened, staring wildly. Consciousness returned, the patient eagerly drinking water proffered to him. After about two hours' work the natural respirations became longer and longer, until they appeared almost normal.

The opening in the side of the valve (one-eighth by one-half of an inch), which permitted air to pass in for the natural respirations, was not large enough to supply the lungs with their full requirement of air, so that natural breathing could only be carried

on for a short time before dyspnœa would ensue. This was evidenced on the part of the patient by gasps and uneasy movements. When this occurred, the natural were supplemented by the forced respirations with the effect of always quieting and easing the patient.

When the *forced respirations* were kept up for a short time, and the blood became surcharged with oxygen, it would be some time before attempts to breathe were made—this was frequently observed; advantage was taken of this, and this condition was produced when the change from the cumbersome tracheal tube of the respiratory apparatus was made for an ordinary tracheotomy tube, and the patient allowed to breathe for himself.

In the variation in the number of respirations we find one of the most interesting and instructive features of the whole case. When the operation was begun at nine o'clock, Saturday morning, the rate was *less* than *one* per minute; when completed, three hours later, some *eighteen* or *twenty* per minute, and remaining at the normal number during the rest of the day. During the following night, they were again modified by the delirium, and the next day, or about twenty-four hours after the operation, had lowered to the unpleasant rate of *only six per minute*. Here they remained for a short time, then gradually came up to eight, ten, twelve, and fifteen, and two days after the operation became normal in number and action. This remarkable variation can most easily be explained by assuming that the shock and paralysis to the system had been almost completely overcome by the forced respiration; that the effect of the residual poison in the blood did not exert its influence under the forced respirations, but that in the following twenty-four hours, under the ordinary conditions of the system, the poison *remaining* again produced its effects; and had not the eliminative organs steadily continued to rid the system of the poison, secondary poisoning might have taken place with serious, if not fatal, results, or forced respiration might have had again to be resorted to. In all these cases it is interesting to note the marked difference in favor of forced respiration over artificial respiration in effects produced on respiratory centres. Where the latter will not suffice, the former should always be substituted before a fatal prognosis is rendered.

In Case III. the paralysis of the respiratory centres was more complete than in Case I. Two ounces of laudanum were fully absorbed. The patient had been kept alive three hours by artificial respiration, when the forced respiration was carried on for two and one-half hours before consciousness fully returned. Fifteen minutes after this it was noted that the patient would not make the slightest attempt to breathe when the forced respiration was discontinued. This was not apnœa (taking that meaning of the term in which the respirations are discontinued by the surcharging of the blood with oxygen), but under the ordinary continuous operation of the apparatus. During the first six or eight hours of this case, the bellows were given two movements for inspiration, not furnishing sufficient air to supply the system with its full requirement of oxygen. The consequence was that cyanosis gradually increased until the face, neck, lips, eyelids, pinna of ears, and dorsum of neck gave marked evidence of it. In this condition, when it would seem that the tissues of the body would be demanding oxygen, not an effort would be made toward natural respiration when forced respiration was discontinued.

The most remarkable feature in this interesting case was that under this condition of marked paralysis of the respiratory centres and deep cyanosis the patient was *conscious*, and would respond to ordinary requests such as drinking when desired to; when asked to *take a long breath*, he would evidence the power of the will over the respiratory muscles or centres by responding with a good effort at inspiration. He would, however, immediately subside into his former lethargic state, and not make more than one voluntary effort at respiration. Cyanosis would increase and when the condition of asphyxia had been reached, extraordinary respiratory efforts were noted, but immediately subsided when the forced respiration was again substituted. Many persons besides the four physicians were present. This experiment was repeated a number of times in the presence of the physicians.

These facts, and those noted in connection with Case IV., give hopes that forced respiration may have a wider field than merely in cases of opium poisoning, and illustrate in a most interesting manner the marked difference in function between the medulla oblongata and cerebrum. In Case IV. the respiratory centres were not so completely paralyzed as in Case III. Owing to the great loss of blood the effects of the opium had almost passed away some twelve or fifteen hours after the forced respiration was instituted, but the vital energy remaining was not sufficient to enable the patient to breathe for himself until some twelve hours later. This is thoroughly attested. In this state the patient was as "quiet as a lamb" for long periods at a time, under the forced respiration, and after it had been discontinued requested the reapplication of it. It supplied a need in this case that artificial respiration, with its bodily movements, could not have done.

In the case of the old gentleman eighty years of age, who was reported to have taken tr. opii ℥j, the entire cerebral system seemed thoroughly paralyzed; the return of consciousness, compared with the other cases, was slow and lasted but a short time. Here old age had an influence, and the

tissues of the brain had, undoubtedly, lost their susceptibility to stimulation. In the case of the eighteen day old infant, the changes wrought by forced respiration were beyond comprehension; that a child in the state in which this was found could be made again to respond to the influence of any agent, so as to affect the entire system, after having been under the influence of so large amount of morphia seems almost incredible. I cannot ignore the grand results obtained by artificial respiration in many cases of opium poisoning, and could cite many remarkable cases; but feel from the short, although important, experience with forced respiration, that we have something more than a *dernier ressort* compared with artificial respiration, and all that is needed to demonstrate such to be the truth, is its application to suitable cases when presented. One fact which should be borne in mind is, that artificial respiration in extreme cases is always carried on at the expense of the patient's energy, and we might emphasize the fact that the physician expends *about all he has also;* whereas, in forced respiration, with an attendant to work the bellows, the patient is passive, and the physician has merely to press on a valve some eighteen times a minute. In a long-continued fight for life, this is a factor of no inconsiderable importance.

FORCED RESPIRATION IN DROWNING.

It is probable that forced respiration may come into application in all cases in which artificial respiration has been used and failed to keep up the action of the heart. In cases of drowning, we will find a favorable field for its use. All of the cases previously cited prove conclusively that the cephalic centres respond more readily to forced respiration than to artificial respiration. If I choose to make comparisons, I could show that the early return of consciousness in deeply narcotized subjects was greatly in favor of forced respiration. On this account, and the results I have already obtained, we must expect that in almost all cases of asphyxia, from whatever cause, forced respiration will be considered the most reliable agent we can apply. Where tracheotomy is always necessary, it may not be generally used. In drowning and many other cases tracheotomy need not be performed, forced respiration may be applied by intubation of the larynx or trachea.

I can best illustrate the method of applying it in drowning by presenting an imaginary case. A patient, removed from the water, lies still before us; slight fluttering of the heart indicates life; water may still remain in the lungs; with suitable forceps pull out the tongue, pass the flexible rubber tracheal tube, by aid of the trachea guide (a curved steel bar which hooks up the epiglottis and carries the tube back and presents it properly at the laryngeal opening, and by which it is easily passed a short distance into the trachea; withdraw the tracheal guide, secure tracheal tube with tape about the neck, connect forced respiration apparatus, and you are ready to breathe for your patient. Now force a minimum amount of air into the lungs; if water be present, a gurgling sound will disclose it.[1] To remove it, invert the patient, raise the hips and lower the head, and if water be present the air will rise above it and force it out of the air valve. After this, replace in the dorsal position, apply heated and medicated air, water per enema, hypodermatic stimulation, etc.; but nothing by the mouth, for fear it might pass into the lungs. We have in drowning no *poison* to eliminate, therefore, no special need of eliminative medication by the stomach. As soon as the patient may be depended upon to breathe for himself, remove the tracheal tube and give liquid food by the mouth.

FORCED RESPIRATION IN SHOCK.

In shock we have the combined afferent nervous impressions proceeding from the injured terminals, producing a greater or less degree of paralysis of the central nervous system, through, or by which the various important functions of the economy are carried on. We do not have the respiratory centres almost alone paralyzed, as in opium poisoning, but we may include all the functional centres of the economy. Did we not have frequent evidence of recovery from shock, I would not feel justified in suggesting the possibility of keeping up or saving human life in such cases by forced respiration. I offer the cases of Mr. Baere and Mr. Van Orden as instances from which it is reasonable to infer that forced respiration may be expected to give results in shock to be obtained by no other means.

72 Niagara St., Buffalo, N. Y.

TWO CASES OF STRICTURE OF THE RECTUM: EXTERNAL PROCTOTOMY.

By WALTER B. PLATT, F.R.C.S. (Eng.),
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Case I. *Syphilitic stricture of rectum; recto-vaginal fistula: external proctotomy; entire relief from difficulty of defecation.*—M. W., married, a small, thin, dark-complexioned woman, about thirty-five years of age. For three years patient had had difficulty and pain in defecation, with constipation; some blood passed at stool. She attributed her stricture to an operation for fistula in ano; no history of syphilis, or physical signs, except circular, pigmented spots on legs. The patient had, however, led an irregular life, and is now living with a negro. If no laxative was taken, bowels moved but once a week, and then with diarrhœa and pain. Apart from this she considered herself in fair health. Fluid fecal

[1] In Case III., the gurgling of blood in the lungs could be heard ten feet from the patient.

matter sometimes issued from vagina. She had a very lax anus, surrounded by a fringe of external piles, flat and bluish.

One and one-half inches up the rectum a great narrowing of the calibre of the bowel was felt, which barely admitted the tip of the forefinger. It appeared to be more in the superior part of the bowel. It was found, after the operation, to be three-fourths of an inch long, and somewhat longer on the inferior than on the upper surface. It was granular within, and very hard and inelastic to the touch. The stricture could be moved from side to side with the finger-tip.

After some weeks of anti-syphilitic and tonic treatment, the case was deemed eminently suitable for external proctotomy, which was accordingly done November 20, 1887. The patient being etherized, the skin and part of the adjacent tissues from the anus to the coccyx were divided with the thermo-cautery knife. Its use was so unsatisfactory that recourse was had to the knife to complete the operation. The skin, sphincter, lower rectum, and stricture being divided in the median line from above downward (the stricture by the introduction of a long stricture knife), the bowel above the stricture could be plainly felt—smooth, soft, elastic, and apparently not abnormally dilated. The hemorrhage was very free for a moment after the division of the rectum, and the blood was bright red in color. The flow was checked with little trouble by the free use of hot water and pressure with hot sponges. An oiled linen rag was introduced into the rectum, and filled with sponges, so as to exert pressure upon the rectal walls and the cut surfaces. One-fourth grain of morphia was given twice in the following twenty-four hours, and the sponges removed at the end of that time. There was considerable brownish discharge, and a little blood and pus escaped when the sponges and the oiled rag were removed. The wound was now thoroughly washed out twice daily with warm carbolized water, and iodoform dusted in as far as practicable; a pad of absorbent cotton applied over all.

December 9. Nineteen days after operation a Tiemann's soft-rubber conical rectal bougie (No. 6) was passed.

10th. No. 7 passed.

19th. Passed No. 10. I have five times passed No. 8 since last note. It gives the patient some pain to go about and uneasiness to sit down. Patient has a good stool every second or third day, after using licorice powder. She has control over flatus and feces, she looks well, and eats the same food as before the operation. Some time after this the patient was seen by my nurses going about the street. She said she was in good condition, and had one stool daily by smoking a cigarette. She did not consider a bougie any longer necessary, although she was advised to have it passed once a week.

Case II. *Syphilitic stricture of the rectum: recto-vaginal fistula; external proctotomy; entire relief form symptoms.*—F. W., a slender, small, pale woman, æt. twenty-five, married. There was a clear history of infection nine years ago, when she had a sore upon the vulva, followed by loss of hair, sore-throat, and a skin eruption. Soon after this a "wart" was removed from the perineum, and five months ago the writer removed abundant cauliflower-like growths from the labia-minora, perineum, and the circumference of the anus. Since last autumn, for about eight months, she had had difficulty in defecation, and fluid passages, two or three daily. Said she had rectal stricture and a fistula. She had palpable supratrochlear and inguinal glands. No evidence of skin eruption; remnants of the cauliflower-like eruption still visible on vulva. Rugæ in vagina greatly hypertrophied. A milky discharge from the vagina, and a small opening in the vaginal wall communicating with the rectum. Patient said that fluid feces sometimes exuded from the vagina in small quantity. Her husband had an abundant macular red eruption on his face.

About one and three-fourths inches up the rectum could be felt a very firm, slightly movable ring, barely admitting the tip of the finger. This was apparently one-half an inch in thickness. Operation June 18, 1888. The patient being etherized, a long probe-pointed bistoury was introduced into and through the stricture, the cutting-edge directed downward in the median plane. The stricture was now divided entirely through until the smooth, thin, soft, lower surface of the rectum above the stricture could be felt. The incision was then completed by dividing all the tissues of the rectum, sphincter, and skin down to the sacrum and coccyx. Hemorrhage was moderate and easily controlled by hot water irrigation. The knees were tied together, iodoform dusted over the region, and a pad of absorbent cotton firmly applied to the seat of operation by a "T" bandage.

Beyond a copious discharge of brownish, bloody fluid from the rectum for the first two days, convalescence was uninterrupted. The rectum was washed out with carbolized water twice daily, and after thoroughly drying the parts, a dusting powder applied. Very little pain was experienced after operation; patient complained merely of parts feeling very sore when irrigated. After three to four days, yellow discharge abundant. Passage of rectal bougie No. 6 begun on the eighth day; patient kept for a week on milk diet.

She was up and about the room in ten days. Went about as usual shortly after this. October 1, a No. 8 rectal bougie was passed twice for one week at the end of ten days, then once a week up to the present time. The patient was placed upon a treatment of biniodide of mercury before and after the operation, with moderate improvement. There was a return of syphilitic symptoms, enlarged sub-occipital and sub-lingual glands. These quickly disappeared after two weeks' use of twenty-five grains of potassium iodide three times a day, with hyd. cum creta and Dover's powder, one grain of each five times daily. A tonic treatment has been employed from time to time. Up to November 1st I introduced a No. 8 conical rubber elastic bougie, once a week with little difficulty. Some bronzing of skin about the anus from discharge and daily washing out with solution of carbolic acid. Patient has one comfortable stool daily. Perfect control of feces and

flatus as far as I can determine. Feels well and goes about as usual. With the exception of being pale she is in good physical condition. A pink, granulating slit, still open, extends from anus nearly to coccyx. This gives rise to no pain or discomfort. There is still a slight discharge.

REMARKS.—Both the above patients have expressed themselves as greatly relieved, and at the present time, one year and five months, respectively, from the time of operation, have excellent control of both flatus and feces, experience no discomfort, and almost no inconvenience. They are now going about and attend to their daily occupations. Like all known operations of any kind for strictures of flexible canals lined with mucous membrane, we look for palliation, not cure. A bougie must be passed once a week at least for the remainder of the patient's life.

With electrolysis I have had no experience. Whatever this procedure may do for soft and short strictures, the writer must confess himself sceptical regarding any benefit to be derived where the stricture is long and dense, as in the above cases.

External proctotomy was probably first advocated and extensively practised by Nélaton and Humphrey, who operated with the knife. It has since been practised principally by French surgeons; among them Verneuil, Fochier, Labba, Trelat, Panas; and by Kelsey and others in America. The operation was done at first by Nélaton with the knife; later surgeons have often used the thermo-cautery and écraseur, sometimes the galvano-cautery. The choice of an instrument may depend somewhat upon the cause of the stricture. If due to malignant disease, the thermo-cautery ought to be used to divide the stricture, if not anus as well. Or if for any reason hemorrhage is particularly expected, either the latter instrument, the galvano-cautery, or the écraseur. Otherwise I prefer the median downward incision with the long, straight, probe-pointed, strong bistoury.

The hemorrhage was not excessive in either of the two cases operated on by the writer, easily controlled by hot water, and in one case by an oiled rag packed inside with sponges. Previous to operation the rectum ought to be thoroughly emptied as far as possible, by giving a dose of castor oil the night before, and an enema on the day of the operation. After etherization the anus should be dilated by the thumbs of the operator, taking plenty of time to do it, dilating gradually but thoroughly. This adds both to the comfort of the patient and to the convenience of the surgeon. The after-treatment consists of rest in bed with the knees fastened together for the first twenty-four hours, a pad being interposed to prevent discomfort. Milk diet for ten days, and enough opium for forty-eight hours to insure quiet. The wound ought to be washed out twice daily with warm carbolized water, and after thoroughly drying the parts, apply iodoform to the wound, and some soothing dusting powder to the surrounding skin. To cut a rectum and anus for the lower two to three inches of its extent, down to the sacrum and coccyx, seems not only radical, but barbarous. We must not forget that we leave the patient with a granulating V-shaped slit for a long time after the operation, if not forever, instead of the previously circular and puckered anus; but any patient who has long suffered the miseries of rectal obstruction will thank the surgeon for the great relief he has afforded. Moreover, this operation will render that of artificial anus in the flank much less frequent, and is infinitely better in its results when it can be done in place of it.

The reason why we divide everything down to the bone and outward through the anus, is to solve the vital matter of drainage. Without this complete incision the lower rectum becomes a bowl of poison, which experience shows the system is likely to absorb with resulting septic intoxication and often death. With the incision, the operation is free, safe, and good in its results. The insertion of a drainage tube between the anus and coccyx, leaving the anus intact, would not solve the septic difficulty entirely, while it would leave a fistula to be operated on later by cutting through into the rectum.

I wish to acknowledge the kind assistance of Dr. S. T. Earle, who took charge of the second case after the first ten days.

859 PARK AVENUE, BALTIMORE,
November 19, 1888.

ON LESIONS OF THE CONUS MEDULLARIS AND CAUDA EQUINA, AND ON THE SITUATION OF THE ANO-VESICAL CENTRE IN MAN.[1]

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THERE have been published recently several observations which add materially to our knowledge of injuries and lesions of the terminal section of the spinal cord and of its nerve roots, and which also throw considerable light on the exact situation of the ano-vesical centre.

In a suggestive and valuable communication "On the Segmental Distribution of Sensory Disorders," Ross[2] analyzes the distribution of the sensory branches of the lumbo-sacral plexus, and calls attention to the arrangement of the lower sacral and coccygeal nerves, which supply by the small sciatic, derived from the third and fourth sacral roots, the external aspect of the skin on the back of the thigh, and from these same roots, through the inferior hemorrhoidal, pudendal, and pudic nerves, the anus, perineum, scrotum, and penis.

[1] Read before the Philadelphia Neurological Society, October 22, 1888.

[2] Brain, January, 1888

Cases of injury have been reported in which a sensory paralysis of this distribution has been associated with paralysis of the rectum and bladder, and with little or no involvement of the parts supplied by the first and second sacral and the lumbar nerves. Such instances are, in fact, important and valuable experiments from the study of which much may be gathered. Thorburn[1] reports four cases of injury of the cauda equina in which, with paralytic symptoms of variable extent, there were incontinence of urine and of feces, and anæsthesia in the distribution of the branches of the lower sacral nerves. He quotes also a case of Olivier's of gunshot wound in the lumbar region, which nine years after the accident presented complete anæsthesia of the postero-internal and anterior parts of the thighs and of the penis and scrotum.

Bernhardt[2] records a case of injury, the result of a fall on the buttocks from a height, which was followed by retention of urine and incontinence of feces. There was no paralysis of the legs, but there was absolute anæsthesia of the anus, perineum, scrotum, penis, and the skin of the upper two-thirds of the thighs. There were erections and within a few weeks after the injury coitus was possible, but ejaculation was defective and the semen flowed slowly *post cohabitationem*. Although the scrotum was anæsthetic, the testes were sensitive to pressure, and the cremasteric reflex was present. These parts are supplied from the genito-crural nerve, a branch of the lumbar plexus, which is, as Thorburn points out, usually unaffected in these cases.

A still more instructive case is reported by Oppenheim in the last number of the *Archiv f. Psychiatrie*, Bd. xx. Heft 1. A workman fell from a height of nineteen feet upon his sacrum. There were numb feelings in the legs, paralysis of the bladder and rectum, and complete anæsthesia of anus, perineum, scrotum, penis, and of the skin on the postero-internal aspects of the thighs. No erections. The reflexes were retained. The movements of the legs were perfect and the numb feelings disappeared. The other symptoms persisted and death took place about three and a half months after the injury. The autopsy showed a fracture of the first lumbar vertebra, and a traumatic myelitis and hæmatomyelitis of the conus medullaris, and a degeneration of the posterior roots of the third and fourth sacral nerves coming from the conus at the seat of injury. We have here the very anatomical facts needed to complete the picture, and they moreover render it very probable that in these cases the terminal portion of the cord—the conus—is itself the seat of the lesion, although it is possible that involvement of the nerves alone would produce the symptoms.

[1] Brain, January, 1888.

[2] Bernhardt: Berliner klin. Wochenschrift, No. 32, 1888.

By no means the least interesting aspect of these cases is the light they throw on the situation of the ano-vesical centre in man. Kirchoff[1] had already concluded that it was situated in the conus medullaris in the region of exit of the third and fourth sacral nerves. In the case of a man who had fallen on the nates, and whose important symptom was paralysis of the bladder and rectum, the lesion was found in the conus three centimetres above the filum terminale. Oppenheim's case is a still more accurate demonstration.

The following case can be understood with the aid of the preceding remarks:

Joc. C. H., æt. sixty-three, applied at the Infirmary for Nervous Diseases March 7, 1888. Family history good. Has always been healthy and well, though as a young man he had syphilis. Served in the army and on June 8, 1862, sustained a fracture of the spine. In the battle of Cross Keys, as he was crossing a bridge, a bullet struck him on the cartridge-belt, and the shock knocked him off the bridge, and he fell on the rocks in a sitting posture. He was senseless, and on coming to found himself in the ambulance wagon. Was in the military hospitals three and a half years at Winchester and Fort McHenry, for three years of which time he was on a water-bed. The skin of the back was not broken by the fall. He was paralyzed in the legs and lost control of the bladder and rectum. After a time he could move the legs, but he did not walk until December, 1865. Since that time he has been able to be about, but he has never regained control over the bladder and rectum. Uses a catheter three or four times a day. Never knows when he is going to have a stool.

Present Condition.—Well-built, vigorous-looking man for his age; walks well, but favors the left side a little. When stripped, it is seen that the left leg is slightly smaller than the right. Measurements gave, right calf fifteen inches, left thirteen and a quarter inches; left thigh also somewhat smaller. He says the leg has been thin ever since the accident, but he is always able to get about quite well. The spine is straight, the lower dorsal vertebræ a little prominent, lumbar normal; no signs of abrasion or of any scars; no pain on pressure.

There is complete anæsthesia of the lower gluteal regions, posterior aspects of the thighs, perineum, scrotum, and penis as far as its root. In all other regions sensation is perfect. He does not feel the passage of a catheter. He is impotent. No information asked about seminal emissions.

Gluteal reflex well marked.

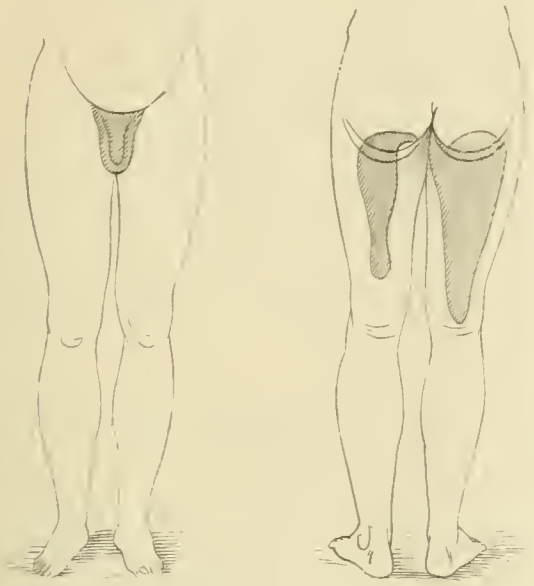
Cremasteric reflex present.

K.-J. + +. No ankle clonus.

We have to deal here with a residual paralysis of the bladder and rectum and of the skin supplied by the small sciatic, inferior hemorrhoidal, pudendal nerves arising from the third and fourth sacral roots. Whether the injury involved originally the cord or

[1] Archiv f. Psychiatrie, Bd. xv.

only the branches of the cauda equina does not seem possible to determine. The fact that slight wasting of one leg remains would indicate a neural rather than a central lesion.



Distribution of the anæsthesia.
Front view. Rear view.

These cases do not all result from injury. Rosenthal[1] reports the case of a woman, aged thirty, who, as the result of exposure to cold, had incontinence of urine and feces, associated with anæsthesia of anus, perineum, vulva, vagina, and lower gluteal regions. The legs were in all relations normal. From a consideration of these cases we may conclude:

1. That the ano-vesical centre in man is situated in the lowest segment of the spinal cord—the conus medullaris—at the region of exit of the third and fourth sacral nerves.

2. The association of paralysis of the rectum and bladder with anæsthesia in the distribution of the inferior hemorrhoidal and pudendal nerves points to a lesion of the lower sacral nerves or of the conus medullaris. It is not always possible to determine which is affected.

REPORT OF A CASE OF INTESTINAL OBSTRUCTION FROM EPITHELIOMA OF THE DESCENDING COLON.

Resection of Intestine; Subsequent Closure of Artificial Anus.

By CHARLES B. PENROSE, M.D., Ph.D.,
OF PHILADELPHIA.

B. P., aged fifty-three, had been suffering with obstinate constipation for twelve months. Defecation had gradually been becoming more difficult and painful. There had been no movement of the bowel for twenty-eight days before operation, though purgative medicines and rectal injections had been vigorously administered. Before the abdominal distention became too great, her attending physician, Dr. Bernardy, had observed a movable mass in the left iliac region, which he had diagnosticated to be cancer of the descending colon. There had been feculent vomiting for two days before the operation.

When seen by the writer, on February 1, 1888, the abdomen was greatly distended. There were constant abdominal pain and dyspnœa. Temperature 101°; pulse 130. Tongue dry and brown. There was no doubt about the diagnosis of intestinal obstruction—probably from cancer of the large intestine—and laparotomy was immediately performed. The incision extended from the umbilicus to four inches below. The intestines were congested, and there was a small quantity of bloody serum in the peritoneum.

As the distended intestines greatly impeded the search for the obstruction, a loop of bowel was incised, and the flatus and fluid feces allowed to escape. The opening was closed with a continued silk suture (Dupuytren's). A hard mass was felt lying deep in the abdomen, to the right of the vertebral column. This proved to be a dense, hard, annular constriction, about one inch in width, around the descending colon. The gentle traction used in bringing the constricted intestine to the abdominal opening was sufficient to break it transversely across—through the middle of the stricture. As, however, the growth involved the whole lumen of the bowel, each end remained closed, and no feces escaped.

The transverse section of the stricture presented the appearance of friable colloid material. The mesentery of the constricted portion of the intestine was thickened, indurated, and contracted. No indurated glands were discovered.

The stricture, with about ten inches of the contiguous thickened portion of intestine, and a triangular piece of mesentery, was excised. It was necessary to ligate many vessels in the divided mesentery. The upper end of the bowel was turned over the parietes, and a large quantity of flatus and a bucketful of green fluid feces escaped.

The two ends of the divided gut were stitched together for one-half their circumference, with a continuous strong silk suture, which penetrated all the intestinal coats. The ends were then stitched, at the lower angle of the abdominal incision, to the skin margin, by a similar continuous suture. The abdominal cavity was irrigated with warm distilled water, and the incision closed. No pus escaped into the peritoneum during the operation.

For thirty-six hours after the operation there was a continuous discharge of flatus and feces from the abdomen. The distention disappeared very rapidly, and in twenty-four hours the abdominal parietes were depressed below the costal margin. The relief to the patient was so immediate that she slept almost continuously for the first two days.

With the exception of an attack of pneumonia in the fourth week, the convalescence was uninterrupted. Examination of the excised bowel showed that the

[1] Ueber das centrum Ano-vesicale. Wiener med. Presse, Nos. 18, 19, and 20, 1888.

growth was epithelioma, involving the portion of the large intestine about ten inches from the anus.

The patient continued well, and had regular evacuations daily, about eight o'clock every morning, from the artificial anus. The opening contracted in size, so that three months after the operation it would admit but two fingers. The skin and mucous membrane at no time presented an abraded, ulcerated, or unhealthy appearance. There was at times a slight prolapse of the bowel through the opening.

On May 23, 1888, she was etherized, and Dupuytren's enterotome was placed on the septum between the two sections of gut. The enterotome came away at the end of seven days, and the bowels were moved by the natural anus. After this the bowels were moved daily, partly by the natural and partly by the artificial anus.

As a considerable spur still remained between the upper and lower segments of gut, and the feces had to pass over this to enter the rectum, Dupuytren's enterotome was again applied on June 24, 1888, and the spur was divided to the extent of about one and a half inches. The enterotome came away in seven days, and the bowels were moved for two weeks chiefly by the natural anus. Feces then began to come, in gradually increasing quantity, through the abdominal opening. A piece of heavy rubber catheter, six inches in length, was placed in the bowel, extending from the upper to the lower portions, in order to depress the remnant of the spur. This was used for six weeks. It was necessary to reintroduce it every two or three days, as it was frequently passed out by the natural anus. Its presence increased the relative amount of feces passed by the natural way, though about one-half the total quantity continued to escape by the abdominal opening.

On August 20, 1888, the patient was again etherized. The edges of the artificial anus were freshened by removing a circular strip of skin about a third of an inch in width, and a contiguous circular strip of mucous membrane about half an inch in width. An elliptical disk of rubber one-sixteenth of an inch in thickness, and with a long axis of one and a half inches, was armed with four silk ligatures placed symmetrically around its edges, and was introduced into the artificial anus on the plane of the parietal peritoneum—thus forming a floor for the abdominal opening, and protecting the intra-abdominal line of incision from feces and flatus. The four silk ligatures were passed through the parietes, in order to hold the rubber disk in place. The freshened edges of the artificial anus were united by sutures of silkworm-gut. A rectal tube was used continuously for the first two days. The bowels were moved by enema and sulphate of magnesia on the fourth day. The sutures were removed on the tenth day, and the silk ligatures attached to the rubber disk were cut. On the fifteenth day an abscess about the size of a pea ruptured at the lower angle of the abdominal wound, and for a few days a very small quantity of feculent material escaped. The rubber disk was discharged from the rectum about the sixteenth day.

When last seen, November 15, 1888, this woman was at work; her bowels were moved easily and naturally, and the abdominal line of incision was closed throughout, presenting the appearance of the incision of a simple laparotomy.

One of the chief points of surgical interest illustrated by this case is the advantage of making a temporary artificial anus after resection of the intestine, when there is a great collection of flatus and feces in the alimentary tract, rather than by uniting the gut by circular suture, and immediately restoring its continuity. The dangers incident to immediate suture are due to the following causes:

1. The sutures are introduced in an intestinal wall which has become weakened and attenuated by prolonged distention.

2. The line of suture is exposed to great tension, which in some cases of obstruction has been sufficient to rupture the intestine.

3. There is danger of sloughing and kinking at the suture line.

4. The relief to the patient is not so immediate, since the flatus and feces have to travel a longer road before escaping, and the danger of toxæmia, and of subsequent obstruction from kinking and intestinal paralysis, is increased.

Von Bergmann (*Deutsch. med. Wochenschrift*, No. 24, 1888) reports a case in which, after resection, the continuity of the intestinal tract was immediately restored by a circular intestinal suture, and on the second day it was necessary to reopen the abdomen, remove the intestinal sutures, and make an artificial anus.

Agnew (*Med. and Surg. Reporter*, September 15, 1888) reports a case of resection of the small intestine in which the continuity of the gut was immediately restored, and the subsequent autopsy showed that one of the stitches had been torn out, though there had been no escape of feces. And he adds:

"With the light daily accumulating in this department of surgery, it would have been better, instead of stitching together the ends of the intestine, to have brought them out of the external wound, and to have attached the half circumference of each to the parietes, preparatory to another and a later operation for reëstablishing the continuity of the intestinal tract."

A SUCCESSFUL LAPAROTOMY FOR STAB-WOUND OF THE INTESTINE.[1]

By J. C. SEXTON, M.D.,
of Rushville, Indiana.

In presenting this report, the writer does not feel that he is called upon to do more than direct attention to certain points in connection with the operation and subsequent treatment. "Rule of action" has already been formulated for the treatment of such cases to such an extent that further comment thereon is uncalled for, unless something distinctive is done or observed during the course of an individual case.

[1] Read before the Union District Medical Association.

While I will not use valuable time in reviewing the literature of the subject, I will make the statement that the number of cases successfully operated upon is now so large as to warrant interference in every one of these necessarily fatal cases. A large quantity of intestinal contents poured out into the abdominal cavity, and an external opening of only half an inch whereby it could escape, is quite as surely, though not so quickly, fatal as a stab in the heart itself.

If called to such a case, no surgeon should hesitate to operate even in the face of shock of quite considerable degree, provided he can surround himself with antiseptic advantages, and prepare his operating-room so that he can properly protect the exposed viscera.

The following case is offered in support of this position :

M. L., aged twenty-nine, received a stab-wound of the abdomen and immediately presented himself at the office of Dr. J. W. Rayburn, of Andersonville, Indiana. He was in great pain and very weak. Dr. Rayburn found a half inch opening in the right iliac region through which a knuckle of intestine was protruding. After cleansing the gut in a warm alcoholic solution he was able to return, after gentle manipulation, what appeared to be an uninjured intestine to the abdominal cavity, when, to his surprise, intestinal contents began welling up from the bottom of the wound. He applied a dressing of borated cotton, gave a grain of opium, and had the patient conveyed a short distance to the house of a relative.

I was called to his aid and arrived at the house at midnight, July 14th, three hours after the injury. The patient was a man of perfect physique, absolutely temperate, and up to the moment of injury in perfect health. He was very restless, and suffered from intense thirst and severe pain.

An examination, made under careful antiseptic precaution, disclosed an opening in the abdomen half an inch long, located two inches inward from the right superior iliac spine and half an inch below the level of that process, through which intestinal contents were oozing.

Diagnosis.—Stab-wound of the intestine. The patient decided to take the chance of an operation, and we began our preparations. We waited until daylight, and also availed ourselves of the valuable assistance of Dr. C. H. Parsons, of Rushville.

Nine hours after the injury the patient was placed on the operating-table in fair condition. All antiseptic precautions that were possible had been taken. The room had been cleaned. All the water to be used in the operation had been boiled. The dressings, instruments, sponges, etc., had been thoroughly disinfected. Patient was in front of an east window through which the sun was reflected quite hot. He was covered with clean warm blankets, and hot applications made to feet, thighs, and armpits.

The original wound was enlarged to five inches, and twelve inches of intestine turned out. This was emptied of its contents through two large perforations, and enveloped in napkins wrung out of hot 1 : 20,000 bichloride solution. The abdominal cavity was then emptied of more than a teacupful of intestinal contents. No other intestinal injury was detected and the perforations were closed with a single line of interrupted Lembert sutures of sublimated silk. The larger perforation was squarely transverse and divided the intestinal wall from the mesenteric attachment to the periphery. The smaller was about three-fourths of an inch long, somewhat diagonal, situated quite two inches from the other, and both on the same wall of intestine. The abdominal cavity was then flushed. Pitcherful after pitcherful of hot 1 : 20,000 sublimate solution was poured in until the water returned perfectly clear. The cavity was then mopped dry and the intestine returned. A rubber drainage tube was carried to the bottom of the pelvis. The peritoneum was closed with catgut and the abdominal wall with an alternate layer of deep and superficial sutures. The external dressing was of carbolized gauze, iodoform, and borated cotton.

He had a rise of temperature soon after the operation, but this subsided as soon as he became quiet. He was given a half a grain of morphia, with $\frac{1}{90}$ gr. atropia, forty minutes after the operation, but the drug was not again used. Tympanites, tenderness, and nausea came on promptly, so that we began the use of seidlitz powders in *fifteen hours* after the operation, giving from a third to half a powder every three hours.

July 16. Twenty-four hours after the operation: temperature $97\frac{4}{5}$; respiration 22 : pulse 92. Tympanites and tenderness much less. Nausea persistent.

17th Fifty hours after the operation: pulse 92; respiration 22; temperature normal. No pain, slight tympanites, tenderness nil. Nausea distressing, some vomiting. Wound looking well. He was given a quarter of a grain of calomel every two hours. This treatment stopped the vomiting. Nausea unrelieved.

18th. Pulse and temperature normal. Nausea unrelenting, can take no nourishment on account of it. Seidlitz powders, one-third part every three hours, and enema to obtain motion of bowels.

19th. General condition good. Takes a little milk.

20th. Three actions of bowel remove the swelling, tenderness, and nausea. Appetite returns. Patient calls attention to the fact that borborygmus does not hurt him, but makes him feel better for a time. Drainage tube removed. Stitches showing signs of cutting. Removed all of them and allowed the wound to open. Peritoneum united. Wound dusted with iodoform and packed from the bottom with borated cotton. Edges drawn up with plasters.

No further interest attaches to this now established convalescence. During the second week, however, his bowels were not moved for four days, when the tympanites and nausea came back, he lost his appetite, became depressed, had a rise of temperature, and pain in the bowels. These symptoms all disappeared at once, after free evacuation of the bowel was obtained.

The abdominal wound united by granulation. He went on to a perfect recovery, and was discharged at the end of the third week. The after-treatment of this case was wholly in the care of my colleague, Dr. Rayburn, and to his skill and personal attention I am greatly indebted.

An unlooked-for complication attaches still further interest to this case. On the eighty-eighth day (October 10, 1888) after the operation described above, this man was again injured by the bursting of a cannon which he was firing. He had so far recovered that he was able to do ordinary work, and, although cautioned by his medical attendants that the cicatrix was yet young and soft, he made no effort to protect himself against a ventral hernia.

He was holding the touch-rod, and fired the gun, when he was knocked down by a flying fragment. He was injured about the breast; sustained a fracture of the radius. He had several cuts and bruises about the body and face, and was struck in the right groin with sufficient force to open the old wound.

I arrived at the house five hours after the accident. Patient unconscious, very restless, badly shocked, and bleeding quite freely from some lacerations of the omentum. A large loop of intestine, with a portion of omentum, had escaped, and became strangulated to such an extent that Dr. Rayburn had been unable to reduce it by manipulation.

After stimulating the patient with atropia, brandy, and hot water, and flushing the abdominal cavity with hot 1 : 20,000 bichloride solution, he rallied sufficiently to be placed under an anæsthetic.

I enlarged the wound, amputated the lacerated omentum, and returned the bowel, after a hasty but fruitless search for the intestinal suture of the first operation. The abdomen was carefully sponged out, and a rubber drain carried into the cavity. The peritoneum was then closed with carbolized catgut. The old cicatrix was then dissected out, and the edges of the wound brought accurately together with heavy silk. This adjustment was reinforced by spreading over the abdomen and hip on either side of the wound a broad piece of heavy rubber plaster. The edges of this were placed one and a half inches apart, then by fastening hooks and eyes on its edges, it could be laced up so that all strain was taken off the stitches, and at the same time there was no interference with the absorbent and antiseptic dressing.

The patient rallied promptly. Under Dr. Rayburn's excellent management he escaped a second time the dreaded peritonitis, and made an uninterrupted recovery. Union by first intention took place, and no pus formed. He was able to walk to the polls and cast his vote on the twenty-seventh day after his second injury.

Concerning the intestinal suture, the fact pointed out by Halstead (*The American Journal of the Medical Sciences*, 1887), that the submucosa is the strongest part of the intestinal wall, is most valuable. The operator readily detects this point of greatest resistance, and feels that a suture passed into it will be secure. Many prefer a continuous suture in adjusting a rent of the intestine, because it is more rapid. With the interrupted sutures, however, the adjustment is more accurate, and, if the silk is fine enough, the knot will not retard the union, but can slough off into the lumen of the bowel more rapidly than the unbroken thread.

Flushing the abdominal cavity for cleansing purposes, or where peritonitis has already begun, has been spoken of so frequently that I need not mention it further in this connection. Flushing with hot solutions or simple water, for the purpose of overcoming shock, has not received the attention its utility deserves. Only one writer, so far as I am aware, has called attention to it up to this time. It is rapidly and easily done, and in our case had a prompt effect both times it was tried. The pulse became firmer, fuller, stronger, while the respirations and the color of the skin at once improved.

I find no record of a case in which the solicitation of peristalsis was begun so early after operation for intestinal perforation. The prompt relief afforded by this measure is very satisfactory. To see tympanites that threatens to tear out the sutures, that is giving pain, causing restlessness, nausea, and general distress, disappear in a few hours, and the patient become both calm and cheerful, will at once convince the most sceptical of the utility of this treatment.

The older method of locking up the bowel is just exactly what ought not to be done in such a case. One does not want adhesions, he wants to prevent them. Here is a proposition that I hold almost self-evident, viz., vermicular motion of the intestine is vastly less straining upon the intestinal sutures, than distention by accumulated flatus.

It may not be presumption in me to repeat the injunction so strongly insisted upon by others, that the administration of opiates is wrong in such a condition, when other means will not only relieve pain but overcome the cause of it.

This case adds but little to what as already been presented to the profession. Yet, coming, as it does, from a point far remote rom the centres of surgical triumphs and advancement, it does tend to prove that *any one* possessed of ordinary skill, who will surround himself with proper antiseptic care and preparation, may reasonably expect success to crown his work.

MEDICAL PROGRESS.

Treatment of Spinal Atrophy in Germany.—Therapeutic intervention in spinal atrophy, according to DR. GRAUPNER (*Der Fortschritt*, July 20, 1888), will favor remission in the progress, but will not cure the disease.

As a rule, he begins treatment with inunctions of mercury, starting with one drachm of the blue ointment, the dose of which is increased daily till it reaches two

and a half drachms. At this point the mercurial inunctions cease, and treatment is continued with the daily administration of seventy-five grains of iodide of potassium in three divided doses. Dr. Graupner gives the following formula for a solution of iodide of potassium, to which he adds some belladonna as an antidote to the iodide.

R.—Iodide of potassium . . 75 grains.
Ext. of belladonna . . 7½ "
Distilled water . . . 1½ pints.

The iodide of potassium can be replaced by the iodide of sodium, even if the tabes be not of syphilitic origin.

The treatment with nitrate of silver has in Germany, as elsewhere, its adherents and opponents; it consists in taking three times daily one of the following pills:

R.—Nitrate of silver . . 4¼ grains.
Terra alba . . . q. s.—M.
Make into thirty pills

Dr. Graupner also prescribes antipyrin in thirty grain doses three times daily, in preference to antifebrin, which is given in seven grain doses, or else he uses intracutaneous injections of the first.

To overcome the motor-incoördinations Dr. Ewald uses injections of physostigma.

R.—Salicylate of physostigma . ¼ grain.
Water . . . . . 2½ drachm.

One-half of the contents of a Pravaz syringe would be the ordinary dose for an injection, but it has a drawback, which is, that it at times provokes vertigo and vomiting.

In treating the torpid forms, recourse is had to hydrotherapeutics. Salt, sulphur, and bran baths are used; to the latter are added from one to three ounces of sulphate of potassium or sulphate of sodium, with one ounce of vinegar. With this are combined vertebral inunctions of balsam of musk, camphoretted alcohol, or some other exciting stimulant. Further, the continuous and interrupted currents are used. Add to this a strict diet, with moderate physical exercise, and the treatment is complete.—*Revue gén. de Clinique et de thérapeutique*, November 8, 1888.

Novel Curative and Prophylactic Treatment of Asiatic Cholera.—Under the above title, Dr. A. Tras sums up his views as follows:

1. In order that the treatment of Asiatic cholera should be complete and rational, it must be divided into (*a*) curative treatment, and (*b*) prophylactic treatment; the curative treatment comprising the treatment of the symptoms and the pathological conditions.

2. The symptomatic treatment, which comprises the treatment of symptoms, he does not consider in this article.

3. The pathological treatment, which really is the principal factor of this treatment, refers to the cause of the affection itself. The treatment must consist, theoretically speaking, in the administration of a microbe-destroying agent powerful enough to destroy pathological microbes situated in the most remote parts of the human economy.

4. From a practical as well as a clinical standpoint the bichloride of mercury, dissolved in the form of a liquor, similar to that prepared by Dr. Van Swietan, would seem to answer all requirements.

5. Further, still, if this chemical agent is taken inwardly, before the comma bacillus has been absorbed, it will act as a prophylactic against cholera, in preventing all possible growth of the cholera bacillus within the human body.

6. Bichloride of mercury can thus be justly called the "chemical vaccine of cholera."

7. During an epidemic one can obtain immunity from cholera by using hypodermatic injections of powdered calomel, or the yellow oxide of mercury, which being slowly transformed into the bichloride, would guard the body against infection for a considerable length of time. —*Gazette Hebdomadaire de méd. et de Chirurgie*, November 16, 1888.

Operation for a New Bladder.—Professor Tizzoni and Dr. Poggi, of Bologna, have devised and carried out an extremely ingenious operation for the purpose of "restoring" the bladder in cases in which it is partially destroyed by disease. The object of the operative procedure is to replace the bladder by means of a substitute, that substitute being a portion of intestine. The operation (on an animal) was performed in two stages, an interval of about a month elapsing between them. The first part of the operation consisted in the cutting out of a portion of the intestine, the two ends from which it was taken being immediately sutured; the mesentery was left attached to the excised portion. The ends of this portion were then closed so as to form a sac; one end was then brought down and fixed to the neck of the bladder. The second portion of the operation consisted in separating the ureters from the bladder, excising the latter organ, suturing the intestinal sac in the position of the bladder, and grafting the ureters on to its posterior wall. For a few days there was incontinence of urine, but after a fortnight the sphincter regained its power, and the animal recovered completely. In consequence, however, of the small size of the new bladder, micturition was necessarily very frequent. Professor Tizzoni and Dr. Poggi propose to repeat this operation on another animal, taking care to excise a larger portion of intestine, so as to imitate more nearly the normal capacity of the bladder.—*Lancet*, November 10, 1888

Action of Alcohol upon Pepsin.—Dr. Bardot (*Les nouvelles remèdes*, June 8, 1888), having made several experiments to determine the solvency of pepsin in the presence of alcohol, arrives at the following conclusions:

1. A moderate quantity of alcohol does not alter the fermentative nor the digestive power of pepsin.

2. Should the amount of alcohol exceed fifty per cent., the digestive power of pepsin is at first slowed, then gradually destroyed.

3. Wines containing large quantities of tannin are detrimental to the action of pepsin; small quantities of tannin have no action whatsoever.

The Influence of Moderate Exercise upon Digestion.—Dr. Cohn (*Archiv für klin. medicin*), in order to decide the question: "Is rest or exercise necessary to favor digestion?" made the following experiments in the laboratory of Professor Rossback:

He gave to a number of dogs scraped meat and water; after the lapse of a certain time the contents of the stomach

were removed, the dogs having been submitted to exercise as well as to rest.

With the dogs which had rested, digestion was at its highest one hour after the meal; the juices of the stomach were rich in hydrochloric acid and pepsin, and poor in lactic acid; at the end of two hours digestion was still further advanced; the quantity of hydrochloric acid and peptones considerable; of lactic acid only traces being found. At the end of six hours digestion was complete.

In the dogs which had been submitted to two hours' active exercise after their meal, traces only of hydrochloric acid and peptones were found, but large quantities of lactic acid. It was only after the lapse of five hours (the animals having rested for three hours) that digestion rebegan, marked by the presence of large quantities of hydrochloric acid and peptones At the end of six hours digestion was not yet completed.

Ewald and Boas made the same experiments with the same results. Hydrochloric acid is a product of secretion; lactic acid one of fermentation; the slower the flow of the first, the slower digestion and *vice versa*. The writer concludes that exercise after a meal retards digestion.—*L'Abeille Médicale*, Nov. 19, 1888.

Painless Injections of Antipyrin.—Dr. Hamon de Fougeray gives, in the *Gazette des Hôpitaux*, his method of rendering the hypodermatic injections of antipyrin painless, which is as follows:

Fill the hypodermatic syringe with the following solution:

R.—Antipyrin	5½ grs.
Sol. cocaine 10 per cent. . .	10 drops.

Insert the syringe deep into the soft tissue, inject and no pain will be felt.—*Gazette Hebdomadaire des Sciences Médicales*, November 3, 1888.

Lipanin a Substitute for Cod-liver Oil.—Dr. O. Hauser reports, *Zeitschr. f. klin. Med.*, the results obtained with lipanius at the clinic of Prof. Kohts, at Strassbourg. The preparation was administered to thirty-eight children, ranging in age from fifteen months to thirteen and a half years. In every instance it proved itself to be equal, if not, superior to the ordinary yellow cod-liver oil. Amongst the different affections in which it was tried were rachitis, anæmia, scrofulosis, tuberculosis, and convalescence from severe illness. In every instance the little patients took the preparation with great relish; digestive disturbances, which are observed when giving cod-liver oil, were absent. Even during summer lipanin was well borne. In all cases in which an increase in body-weight was expected, the same was fully realized. Lipanin is given in the same doses as cod-liver oil, and can be mixed with other drugs, such as creasote, menthol, phosphorus, etc.—*Wiener med. Presse*, November 4, 1888.

Treatment of Affections of the Respiratory Organs with Rectal Injections of Carbonic Acid.—Dr. Lecomte having tried rectal injections of carbonic acid gas upon patients suffering with pulmonary tuberculosis, asthma, emphysema, and chronic bronchitis, states that he obtained satisfactory results, such as marked diminution of cough and expectoration, and alleviation of the dyspnœa, especially in asthma.

The mixture of carbonic acid and sulphuretted hydrogen seemed to him to produce the best results. The use of eucalyptol and sulpho-carbonated water was followed by irritation, and a return of all the bad symptoms. After a certain period, the improvement at first obtained through the injections of carbonic acid ceases, even though the amount of this gas be increased.—*Gazette Méd. de Paris*, November 10, 1888.

Treatment of Diphtheria by Eucalyptus.—Dr. Marray Gibbes, a physician of New Zealand, reports a series of remarkable successes obtained with eucalyptus in the treatment of diphtheria. The results noted from this treatment were:

1st. A prevention of the multiplication of the microorganisms. The oil of eucalyptus (oleum eucalyptus globulus) introduced into the economy, through the medium of air, vapor, or food, reappeared in the secreting glands of the pharynx. Through its internal action it prevents the subsequent formation of false membranes. In none of the cases treated with this remedy was any paralysis observed.

2d. Prevention of putrefaction of the destroyed tissue, before its separation from the healthy tissue below. While under the influence of this remedy, the false membrane was always of a healthy color, and the breath remained sweet throughout the entire treatment.

3d. The external application of a moist and warm cataplasm aids the separation of the membranes. The vapors of the oil of eucalyptus will destroy microörganisms floating in the air. To obtain the best results, place some leaves of the eucalyptus tree (which contain the oil) in a dish of boiling water, near the patient, who should be covered with a tent.—*Revue de Thérapeutique*, Nov. 15, 1888.

Pomade for Eczema.—

Resorcin	15 to 30 grs.
Yellow vaseline	1 oz.

This pomade to be used in eczema of the hands; it calms the itch and hastens the infiltration of the skin.—*L'Union Médicale*, Nov. 13, 1888.

Subcutaneous Injections of Solution of Chloride of Sodium in Cholera Infantum.—At a meeting of the Berlin Medical Society of Nov. 7, Prof. Henoch stated that he had obtained excellent results by treating cases of cholera infantum with subcutaneous injections of solutions of common cooking salt. The little patients were brought to his clinic in a state of collapse, with cold extremities, imperceptible pulse, and sunken eyes; the chloride of sodium injections were repeated from six to ten times at one sitting, as many as forty injections being administered during twenty-four hours. The result was surprisingly good, and without doubt in many cases saved the patient's life; those in a state of collapse recovering rapidly without any other treatment.—*Wiener med. Presse*, No, 47, Nov. 1888.

Treatment of Diphtheria.—Dr. Lichterman (*Bull. thérap.*) gives an account of more than 300 cases of diphtheria treated by him at Bérézowka, in the government of Cherson (a country frequently visited by epidemics of diphtheria), by the following treatment:

Called to a patient, he selects the largest room in the dwelling and disinfects the same with chlorine gas.

After the lapse of one hour, the room having been ventilated, the patient is placed therein. Actual treatment begins with a mustard foot-bath of fifteen minutes duration, after which the patient is wrapped in woollen blankets and allowed to perspire for two or three hours. This bath is repeated every evening.

Local Treatment.—1st. Painting the interior of the throat four times daily, with a solution of salicylate of sodium and glycerin (salicylate of sodium 15 grains, glycerin ʒj). 2d. Gargling every half hour with an aqueous solution of chlorate of potassium (chlorate of potash ʒjss, water ℥vj).

Internal Treatment.—Two mixtures—one white, the other red. The first is composed of: chlorate of potassium, 45 grains, water 6 ounces, simple syrup 1 ounce. The second of: hydrochloric acid 2 scruples, water 6 ounces, and raspberry syrup 1 ounce.

The patient takes every hour one tablespoonful of the white, and immediately afterward one tablespoonful of the red mixture. Children under one year take only a teaspoonful, and below that age only half a teaspoonful.

Expectoration is made into a dish containing a 5 per cent. solution of phenic acid. At the end of twenty-four hours the temperature becomes normal, and at the end of forty-eight hours the entire disappearance of the false membrane will be noticed.

The results which the writer obtained through this treatment are as follows: Up to the month of April, 1885, he treated his cases of diphtheria by the method then in general use, with a mortality of forty-two per cent. From April, 1886, to October, 1887, he treated 237 cases, sixty-eight of which were of the gangrenous variety. In these 237 cases he tried the treatment given above, with but four deaths, or seventeen per cent.

When called upon in October by the government to combat an epidemic then raging in the neighborhood of Bérézowka, he treated 47 cases, 8 of which died—forty per cent; these 8 cases having fallen ill five days previous to his arrival.

Dr. Lichterman gives the following theory for his treatment:

1. Under the influence of perspiration the patient's blood loses water and becomes richer in salts, which, according to Dr. Wachsmuth, leaves a poor medium for the development of diphtheritic microbes.

2. The administration of chlorate of potassium aids considerably in this concentration of the blood.

3. Under the simultaneous administration of hydrochloric acid and chlorate of potassium, an acid of chlorine is formed, which last acts very energetically as an oxidizer and microbe-destroyer.—*L'Abeille Médicale*, Nov. 19, 1888.

For the Constipation of Children.—

℞.—Podophyllin . . . . . ¾ gr.
Alcohol . . . . . ʒjss.
Syrup of marshmallow . . . ʒjv.—M.

One teaspoonful once daily.—*L'Union Médicale*, Nov. 20, 1888.

Cyanide of Zinc in Cardiac Affections.—Dr. Lashkewitsch states that cyanide of zinc (zincum hydrocyanicum sine ferro) acts favorably in palpitation, in pain in the cardiac region, and in an irregular pulse due to valvular insufficiency or a neurosis; its action being best marked in the last-named affection. This remedy will be found to be of special service when digitalis, convallaria, and other cardiac remedies seem to irritate the digestive organs. The dose is from $\frac{1}{13}$ to $\frac{1}{11}$ grain, taken once during twenty-four hours.—*Journal de Méd. de Paris*, Nov. 18, 1888.

Therapeutic Uses of Strophanthus.—At the meeting of the Académie de Médecine, Nov. 13, 1888, Dr. Germain See read a paper, by himself and Dr. Gley, upon the therapeutic uses of strophanthus. He states that the drug was used in all cardiac affections, in doses varying from $\frac{1}{13}$ to $\frac{8}{13}$ grain, with but little variation in the results.

1st. In mitral lesions, particularly in stenosis of the mitral orifice, less so in aortic insufficiency, the results were very favorable—that is, the cardiac action was greatly increased, as proved by the sphygmograph; from the start the pulse, which was at first depressed, small, and feeble, gradually gained in strength, the line of ascent at first nearly horizontal, becoming rapidly vertical, and that of descent, which at first was nearly effaced, being now only interrupted at a few points. The irregularities of the pulse disappeared. These phenomena were observed even when the heart had lost its force, no compensation remaining, and even when pulmonary and renal stasis with peripheral œdema existed. But in none of these cases was there any relief in the dyspnœa, nor increase of diuresis or diminution of the œdema.

2d. In all dilatations and fibroid hypertrophies dependent upon a general sclerosis of the arteries, the same results were obtained, namely: an increase in the strength of the pulse and a return to the former general strength. No distinction was noticed between the maladies with *hyper-* or *hypo-*tension.

3d. In the painful affections of the heart and cardiac neuralgias, the administration of strophanthus proved harmful, by increasing the severity of the lesions.

4th. No disturbing action upon the stomach or brain was noticed; but at times slight vertigo was complained of.

Dr. Dujardin-Beaumetz was of the opinion that in prescribing strophanthus it was essential to indicate what preparation was desired, as there were no less than six different tinctures in the market, all of which were of varying strength. These are Hardy's, Gallois's, Armand's, Traver's, Catillou's, and the one made in the laboratory of M. Chevreul.—*L'Abeille Médicale*, Nov. 19, 1888.

Ointment for Furuncles.—

℞.—Red precipitate . . . . 1½ grs.
Lanoline or vaseline . . . ʒss.—M.

If a stye is to be treated, apply the ointment over the affected part and rub gently. In persons in whom the skin is soft and irritable, the amount of red precipitate can be reduced to ¾ or ½ a grain. A single application of three or four minutes' duration will suffice to arrest the progress of small furuncles; and even where the furuncles are large, several applications made the same day will effect a cure. This ointment is also recommended for acne.—*L'Union Médicale*, November 3, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author. Editor's address, No. 1004 Walnut St., Philadelphia.

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SATURDAY, DECEMBER 15, 1888.

THE DIMINISHED MORTALITY OF THE PORRO-CÆSAREAN OPERATION.

A MOST extravagant claim for the Porro operation, rating its mortality at 13⅓ per cent. for the two years 1886 and 1887, and giving for the same period a table of forty-five operations, appeared in the *Journal of Obstetrics and Gynecology*, of St. Petersburg, for December, 1887, from the pen of DR. C. J. CHAZIN. Had this statement remained in its original language, it would have been capable of only a local misleading, but it reappeared as a translation by Dr. Neugebauer, of Warsaw, in the *Nouvelles Archives d' Obstetrique et de Gynécologie*, of August 25, 1888, and this rendering into French will give the record a much wider publicity. We, therefore, feel called upon to point out the important errors contained in this record of the work of the two years in question.

Dr. Chazin finds fault with Professor Credé for comparing in his statement of the results of the "conservative Cæsarean operation," the work of the last five years under this method, with the general record of the last ten years under the Porro-Cæsarean operation, and proposes to make a fair comparison of the two by confining his attention to the better work under the latter, accomplished in the two named years. As the result of his research he produced a table of 45 Porro operations, with but 6 deaths, or 13⅓ per cent., which he brought into competition with the Sänger mortality, which he rated at 28 per cent.

The original table purports to present cases of the two named years, but, in fact, collects them from ten; no dates are given, but the references settle the question of the year when each operation took place. Having carefully examined the whole table and the references given, we are prepared to state: 1. That he has credited the operators with two cases too many, which reduces their number to forty-three. 2. That he has given twenty-five operations which were performed prior to January 1, 1886, viz., two in 1878, two in 1881, two in 1882, six in 1884, and thirteen in 1885. This reduction leaves him eighteen operations, with only two deaths, a very remarkable result, if there were no other cases in the two years. The published cases thus far recorded for the two years amount to thirty-one, of which twenty, with four deaths, belong to 1886, and eleven, with three deaths, to 1887. This will give a mortality of $22\frac{18}{31}$ per cent. for the two years. But this does not tell the whole truth, as cases are still to be reported, and these at present can only be obtained by correspondence.

We have only, after four years, completed the record of 1884, and to do this three statistical collectors were engaged in making private researches and combining their work. The year gives 28 Porro operations, with 15 deaths, a mortality of $53\frac{4}{7}$ per cent. The record of 1885 is as yet incomplete, but gives 22 cases with 6 deaths, a mortality of $27\frac{3}{11}$ per cent. Probably not more than half of the operations of 1887 have been published, and thus far the mortality is also $27\frac{3}{11}$ per cent.

The Sänger-Cæsarean record for the whole world has been completed for 1887, and laboriously perfected by correspondence conducted by three statistical workers. The cases collected come from eleven countries, and number, in all, 47, with 10 deaths, a mortality of $21\frac{18}{47}$ per cent. This record thus fairly obtained, would appear to represent the "conservative Cæsarean operation" as it is now being performed in all countries collectively. The whole Sänger record, as far as obtained, reaches 149 cases, with 41 deaths, a mortality of 27½ per cent.; that of this country being 22 cases, with 13 deaths—a very damaging record to the general result, which, exclusive of the United States, shows a loss of less than 23 per cent. Contrasted with this, the Porro-Cæsarean record, which is not nearly so fully searched out, shows 232 cases, with 111 deaths.

The Porro operation has only recently commenced to show its true capability for saving life, and this

change for the better would appear to have begun with the year 1885. A very marked feature in recent records is the low death-rate in the children, which, in all Cæsarean work, has an intimate connection with a corresponding saving of the mothers. Four years ago we computed the maternal deaths under the Porro operation at 60 per cent., counting all the cases; but recent successes have probably brought down the general average to 50 per cent., and possibly a little lower. The Porro operation in Germany was very fatal in its early period to both mothers and children. Down to the close of 1884 there had been 28 operations, with 18 women and 10 children lost. Since the close of 1884 we have collected 11 cases to the credit of Germany, with only 2 deaths, one of which was by suicide; and nearly all of the children were saved. The Sänger operations of Germany, by their marvellous successes (only 12 deaths out of 80), have taught a lesson in careful management which has been of decided benefit to the cases in which it was thought advisable to prefer the Porro method, and hence the lower death-rate in both mothers and children. The conservative Cæsarean operations of Germany for 1887 numbered 26 and the deaths 2, each of mothers and children. Dr. Chazin attributes the successes of Germany to the work of a few very skilful men, which we answer by the fact that the operations (80) were under 38 operators and in 18 cities and towns.

Austria developed much earlier than Germany the possibilities of the Porro method for saving life, and her record stands in remarkable contrast to that of the latter—30 women and 35 children having been saved under 44 operations, a mortality for the women of $31\frac{9}{11}$ per cent., which should have been lower, but for the fatal experiments of dropping in the cervical stump, as devised by Gustav Veit, of Bonn, in 1880.

It is an error to encourage any rivalry between the Porro and Sänger methods, and we are glad to find that a choice is being made at times between them by the best operators, according to the special requirements of each individual case. Such noted men as Professor Leopold, of Dresden; Professor Chiara, of Florence; Professor Breisky, of Vienna; Professor Schauta, of Prague; Professor Schultze, of Jena; Professor Krassovsky, of St. Petersburg; and Professors Karl and Gustav Braun, of Vienna, do not hesitate to perform either operation, if they think it preferable at the time; and these operators have been marvellously successful in saving life under each method. Mr. Tait, of Birmingham, is prejudiced in favor of the Porro operation, because he has had four successes and no failures, and, besides, is in favor of rendering the women sterile. His cases, with one exception, have not been reported in detail. The seven successes, in order, of Professor Breisky have not wedded him to the Porro operation; neither did his three failures, in order, prejudice him against the Sänger method, as is shown by his fourth trial in October, 1887, the success of which introduced the method into the Krankenhaus of Vienna, where there have since been five more cases and no deaths.

There are those who object very decidedly to the Porro method, because it unsexes the woman; and these also oppose ligating the Fallopian tubes, or exsecting the ovaries, after the Sänger operation. They contend that this method, to be "conservative," must not only preserve the life of the woman and fœtus, but maintain her reproductive organs in their integrity. It is only occasionally that a Cæsarean woman bears a second child, and much more rarely a third; but they contend that she ought to be left capable of doing so if nature does not interfere. A second operation may be avoided in a large proportion of cases by the induction of premature labor, and the child may be reared, as long as required, in an incubator.

The Porro operation is certainly more fatal than the Sänger, although but a fraction more so in the hands of the best Sänger operators. The convalescence is more prolonged and the subsequent inconveniences greater. It should be preferred in cases of malacosteon, because the unsexing occasionally cures the disease. It should also be preferred, where practicable, in cases of obstruction by fibroids, but ought not to be resorted to where the pelvis is normal and the fœtus impacted in a transverse position. It should be preferably employed where the fœtus is dead and putrid; but such cases are apt to prove fatal, because of preëxisting sepsis. There is less objection to its performance in the cases of the unmarried than married, and where the induction of premature labor is unavailable by reason of a very short conjugate in the pelvis. To secure success, the patient should have a favorable pulse, temperature, and respiration, and her fœtus should be vigorously alive. A supra-vaginal amputation of the uterus after rupture is not a Porro-Cæsarean section, as it is not *completive of the Cæsarean operation*, as designed by Professor Porro, and does not contemplate the

saving of two lives. There is one such case in the table of Dr. Chazin. The extra-peritoneal supravaginal amputation of the uterus is older than its Porro application, or that of Prevôt, of Moscow.

A DECISION IMPORTANT TO PHYSICIANS.

The attention of our readers is called to the case narrated by Dr. Hunt in the present issue of The News, and to the importance of the principle involved. The judicial decision establishes the point that a consultant called in by the attending physician to a patient separated from his family and mentally disabled, is entitled to just compensation.

In the case in question the consultant, who was also the ordinary medical attendant, was absent from town, and his advice was given by letter. Against the claim for compensation, it was objected that the consultant could not show contract with the patient, who did not personally summon him, nor was he called by a relative acting for the patient. The Orphans' Court, however, affirmed the contract on the ground of public policy, and awarded the claim; and further affirmed the right of the attending physician, under the circumstances, to summon counsel, if he deemed it desirable.

This establishment of one of the rights of physicians in relation to their patients is a matter of considerable importance. On the part of the medical man, the contract existing with his patient is scrupulously recognized. His best efforts, most careful study, mature knowledge and experience are faithfully given; but, in return, adequate compensation is often questioned, and occasionally refused. A suspicion of failure on the physician's part to meet fully his obligation is even, not infrequently, made the excuse for a suit for malpractice; and so commonly are medical services rendered gratuitously to public charities, that the claim that a contract exists into which compensation to the physician enters, is often regarded with surprise or even ignored. We knew of an experienced surgeon who, hence, never treated a fracture without previously obtaining his patient's signature to a paper limiting his responsibility in the case to that commonly recognized by the courts —average knowledge, skill, and faithful service; and we also recall the experience of a surgeon who presented a very small bill to a millionaire, and was met by a request to please itemize his account.

While the sense of justice common to men ordinarily recognizes the physician's faithful performance of his part of the contract, it is well that the courts should establish clearly the fact that services rendered to a patient at his own request or at that of his relatives or friends or attendant, equally are given under contract and entitled to just compensation.

We congratulate the eminent surgeon who has had the courage to push this point until, finally, justice was obtained, upon the successful issue, and the profession are deeply indebted to him for establishing the important point of the right to compensation of a consultant under the not uncommon circumstances related.

The new Hoagland Laboratory, situated at the corner of Henry and Pacific Streets, Brooklyn, will be opened this Saturday evening by an address to be delivered, at eight o'clock, by Prof. H. Newell Martin, M.D., of the Johns Hopkins University, after which the Laboratory will be inspected by the guests present.

In the *College and Clinical Record* for December, just received, we notice a paper published as an *original* article, which is taken from our own columns of last September, and without any credit to the source of original publication. We are always happy to have the valuable papers which appear in The News noticed in abstract by our contemporaries, but a sense of propriety should prevent a contemporary from abstracting a paper *en masse*, and in infringement of the law of copyright.

Dr. William Robert Smith, at a meeting of the Royal Medical and Chirurgical Society, held week before last, reported the results of his investigations carried on in the Brown Institution, on the etiology of puerperal fever. By the cultivation on gelatine of the blood of patients who had puerperal fever, he obtained, in two or three days, numerous colonies of a micrococcus, and from his experiments he drew these conclusions: 1. That this organism occurred in the blood of persons affected with puerperal septicæmia in considerable numbers in the form of streptococci. 2. That, culturally, differences of a marked character distinguished it from other streptococci. 3. That its action upon mice and rabbits was distinct and definite. 4. That it could be distinctly distinguished from the erysipelas streptococcus of Fehleisen and from the streptococcus pyogenes of Rosenbach.

We regret to learn of the death of Dr. E. Headlam Greenhow, which occurred suddenly, from

syncope, in a London railway station. His name is well known in this country in connection with his valuable researches on diphtheria, chronic bronchitis, Addison's disease, and the pulmonary diseases of operatives. He retired from active consulting practice in 1881. He was in the seventy-fourth year of his age at the time of his death.

REVIEWS.

The Surgeon's Pocket-book: an Essay on the Best Treatment of the Wounded in War; Especially Adapted to the Public Medical Services. By Surgeon-Major J. H. Porter, late 97th Regiment; late Assistant Professor of Military Surgery, Army Medical School, Netley. Third Edition. Revised and Edited by Brigade-Surgeon C. H. Y. Godwin, Medical Staff; Assistant Professor of Military Surgery, Army Medical School, Netley; Late Medical Officer of the Royal Arsenal, Woolwich. 12mo. pp. 257. Philadelphia: P. Blakiston, Son & Co., 1887.

This capital little book has deservedly reached its third edition, this final one being under the clever editorship of Mr. Godwin, who has made such alterations and additions to the well-known work of Porter as to bring the book in almost all respects thoroughly up to the present times. Especially have the editor's efforts to remodel the work according to the principles of antisepsis and asepsis been fortuitous.

Although written more especially for the use of army surgeons, yet as a conspectus of surgery it will be found of great value also to students, hospital residents, ambulance surgeons, and, in fact, to any one; for besides being crowded with mention and illustration of all kinds of surgical resources and improvisions, the principles of surgical treatment, etc., are discussed in a thorough manner and conclusions of recognized and acknowledged soundness are therefrom drawn. To these are added many pages devoted to the formation, location, and transportation of field hospitals, their administration before, during and after engagement, the duties of the various officers of an army, and the general and special care of the wounded and sick under a great variety of circumstances. An appendix contains condensed information regarding food, water, ventilation and the general sanitation of troops and military hospitals. The illustrations are in the main good and sufficiently numerous.

Whilst our commendation is general, yet a few discordant assertions have arrested our attention in looking over the volume. Thus, we cannot agree with Mr. Porter in thinking a chisel and mallet and Hey's saw always preferable to the trephine, nor do we think his list of cases suitable for trephining sufficiently comprehensive. The statement, also, that ether is unsuited to military practice because of the cumbersome apparatus necessary for its administration is incorrect, although we do not deny that chloroform, even considering its greater dangers, may be the more practical anæsthetic for such purposes on account of the much less bulk of it which need be carried and its property of non-combustion.

Our only great disappointment has been to find the sections upon treatment of intra-peritoneal traumata so grossly deficient and absolutely at variance with modern, and more especially American methods. This portion of the book, as well as that upon the treatment of peritonitis, we trust to find entirely re-written in another edition. We are glad to notice the editor's condemnation of the use of poultices upon any kind of wound, and his significant advice that "any dressing had better be omitted rather than have it applied with dirty fingers or dirty water" even in heat of action. It is a source of satisfaction to know that in time of need such a thoroughly good, comprehensive, yet very portable book would be available; for its small size admits of carrying it in the breast-pocket, and we are inclined to think that it would prove a very efficient protection to the war surgeon, and especially to the vital region of his heart were it carried in the left breast-pocket.

CORRESPONDENCE.

THE RIGHTS OF A CONSULTANT TO COMPENSATION.

To the Editor of The Medical News,

Sir: I am happy to be the medium of giving to the profession the following very important decision of the Orphans' Court of Philadelphia County.

The circumstances of the case were these: In the summer of 1886, a business gentleman of large means, a patient of mine for many years, consulted me about some vague head symptoms. I advised him to give up business altogether for a time and to take a vacation with me. This he declined, as his business was too pressing.

Nothing occurred of any moment until after I had left the city to take my summer vacation. While at Bar Harbor I received a letter from Dr. Albert Fricke, whom the patient consulted in my absence, asking for information and advice. I answered at once. The case took a very serious turn, and within three weeks the patient was dead. During all the time of the sickness, however, a constant consulting correspondence was kept up with me.

One of our large trust companies was the executor of the decedent's estate, and to it I sent my bill.

The residuary legatee of the estate was in Europe at the time of the sickness and death, and of her own knowledge knew nothing whatever of the facts. She came home, and one day the Trust Officer of the Company said to me: "Doctor, I wish you would get the endorsement of Mrs. —— on this bill as correct, and we will pay you." I assented, and called at the house, expecting, if I expected anything, to be received with some expression of thanks for the care which was taken of her brother in his loneliness and extremity, for during his sickness he was living in the house with servants only.

Instead of this, I and the doctors who attended her brother were roundly denounced in unsparing terms, and she positively refused to endorse my bill. I have met with some strange experiences in a doctor's history during my professional life, but never with anything quite equal to this. I understood Judge Ashman to say that a case precisely like this has not been adjudicated before. The reason probably is that the opportunity rarely occurs. The common sense of justice in mankind mostly settles such questions, but here was one of the exceptions. There was nothing for me to do but to bow

myself out of the house, and to wait for the adjudication of the case before the Orphans' Court.

At this adjudication, the counsel for the accountant took the ground that Dr. Fricke acted on his own motion in consulting with me; that the patient was well enough when the doctor (Fricke) first saw him to ask, or to insist on his consulting with me if he wished him to do so. To my surprise, the auditing judge decided that as I had shown no contract with the patient I could not recover my bill, and that the attending physician had no authority to employ me. An appeal was immediately taken with the subjoined result, with which I must state the judge first hearing the case was, on review, fully in accord, and the judgment of the bench was unanimous.

The result, I am sure, most people will think is in accordance with public policy, with justice, and with humanity. WILLIAM HUNT.

PHILADELPHIA, Dec. 5, 1888.

"Sur Exceptions to Adjudication.

"Opinion by ASHMAN, J. December 1, 1888.

"Two principles, so commonly accepted, that they do not require to be vouched by individual authorities, seem to establish the right of the exceptant to recover. One is, that a principal will be bound by those acts of his accredited agent, which are reasonably incident to the full performance of the contract of service; and the other, that he will be bound by the acts of a self-constituted agent where his own neglect or the act of God, has rendered those acts necessary for his self-preservation, or for the well-being of society. The first was an ingredient in every contract of agency, under the civil law, and the second is largely due to modern ideas of humanity, but each has an equal and just claim upon our common sense. The cases of Fenn *v.* Harrison, 3 T. R. 757, Nelson *v.* R. R. Co., 48 N. Y. 498, and Richard *v.* Cartwright, 1 C. & Kir. 328, are strongly illustrative of the first of these rules. One of them decided that a broker, entrusted with a note for discount, may endorse it in the name of his principal; another that a carter employed to deliver a mirror to a common carrier, may sign a release for the shipper and owner, against liability for breakage; and the third, that a foreman, without special authority, may bind his employer, by contracting to deliver certain goods at a designated time.

"The spirit in which this rule is to be expounded should be in unison with the character and relations which the parties have themselves established with each other, and should be liberal just in proportion as those relations become more intimate and involve delicate questions of duty and responsibility. To say that the discretion to act promptly in an emergency, which a patient necessarily gives to his physician, is larger than that which a merchant gives to his drayman, is simply to say that a man will resign more of his own authority to the will of the person who is to save his life, than to that of the person who is to take care of his trunks. The trust, which includes the power for its exercise with which the patient vests his physician, is often practically unlimited, because it may require to be executed at a time when disease has taken away all ability to restrict it. The patient is not to be left to die, on the plea that during such an interval, no act of his adviser can be valid, for want of his direct approval. Or, the doctor may suspect the presence of an obscure disease, which, if it exists, demands heroic treatment. To communicate the suspicion to the sick man will probably finish him on the spot; may he not solve the doubt by consulting a specialist?

"But the case in hand is not even so problematical as the case which has just been supposed. The decedent, when he first consulted the claimant, was affected with a brain disorder, which culminated in paralysis, and killed him in three weeks. His powers of thought and speech were so far impaired that it was impossible to communicate intelligently with him as to his past symptoms or as to measures for the future. His sole next of kin was a sister, who was travelling in Europe, and his only attendants were servants. His family physician was in New England. The doctor who was called in by the business partner of the decedent, knew nothing of his patient's medical history; and he wrote for information upon that point and for professional advice, to the claimant, who had attended the patient for years, and who at once responded. If the right, in the consulting physician, to compensation for his services, is without legal merit, then the law is a reproach to conscience. That it has not been passed upon hitherto, means nothing; or rather, it means that it has never been questioned, any more than the right of the physician to charge his patient with the drugs he has purchased, or the nurse he has hired for him, when drugs and nursing were indispensable to his recovery.

"The doctrine, however, upon which the claim is now to be adjudicated, has been repeatedly enforced. It is the doctrine of public policy. In its application the courts have held that a parent who leaves his child in the care of a servant, will be liable to the surgeon who dresses a wound received by the child, although the surgeon was called in by the servant, and although the injury was caused by the servant's neglect: Cooper *v.* Phillips, 4 Car. & P. 581. They have also held, that a husband who abandons his wife, or leaves her even with her own consent, is liable for the necessaries which a third party may furnish for her support: Reed *v.* Moore, 5 Car. & P. 200; Harris *v.* Morris, 4 Esp. 41; that the estate of a decedent is liable for the expenses of a funeral provided by a stranger: Rogers *v.* Price, 3 Y. & Jer. 28; and the estate of a lunatic for services rendered in protecting his person or estate, Williams *v.* Wentworth, 5 Beav. 325, Bagster *v.* Earl of Portsmouth, 2 Car. & P. 178, or in supporting his family, Elwyn's Appeal, 17 P. F. Sm. 367. It is not necessary, for the purposes of this argument, that the decedent should answer to the legal definition of a lunatic. If he was so far mentally disabled as to be unfitted for the proper conduct of his affairs, it was sufficient to justify the action of the claimant: Young *v.* Stevens, 48 N. H. 135; Dennett *v.* Dennett, 48 Id. 531. We do not mean to displace the rule of liability from its footing of strict necessity. The burden of proof that in the absence of an express contract, an implied contract has arisen from the exigencies of the case, must always rest upon the claimant. But that burden was fully met in this instance; and we think that the claim should have been allowed.

"The exceptions are therefore sustained."

THE TREATMENT OF VALVULAR DISEASES OF THE HEART.

To the Editor of THE MEDICAL NEWS,

SIR: In reading Prof. J. M. Da Costa's valuable article on the "Treatment of Valvular Diseases of the Heart,"

in the November issue of *The American Journal of the Medical Sciences*, I notice, on page 444, the following sentences: "Now, we must remember that the very remedy we use most in cardiac disease, digitalis, contracts the arteries and arterioles, and the indications are often to get with increased cardiac power a free flow in the vessels without resistance from them. No remedy does this, and a certain remedy of the kind is greatly needed."

Now, during the past fifteen years, I have been using in such cases a tincture of Cactus grandiflorus with the happiest results. I think, if we have a heart tonic, pure and simple, it is Cactus grand. By its continued use the nutrition of the heart is improved, and the organ is permanently strengthened. I have not found it disagree with the stomach, even after using it for months at a time.

In valvular disease, where the dilatation has outstripped the compensatory hypertrophy, I have found this remedy more satisfactory than digitalis. In that form of cardiac disease called by Dr. Da Costa "functional valvular disease," cactus is now the only "heart" remedy I use. When there is a fault in the cardiac innervation, the heart's action being tumultuous, irregular, intermittent, feeble, the patient nervous, restless, and dreading some impending danger, the continued use of cactus will almost invariably give permanent relief.

I use a tincture made from the fresh plant, giving from one to five drops every two, four, or six hours.

Respectfully yours, C. L. GREGORY, M.D.

YREKA, CAL., Nov 22, 1888

NEWS ITEMS.

Scarlet Fever in Relation to a Glasgow Milk Service.—Dr. J. B. Russell reports the occurrence of another outbreak of scarlet fever associated with the use of milk from a special dairy. The occurrence was practically limited to a well-to-do part of the city; and, after local investigation into the distribution of the milk from two separate shops, and by means of vans and carriers, it appears that of three hundred and thirty-six families thus supplied twenty-nine were infected, and forty-three cases resulted. It is also noteworthy that of a total of fifty-six cases of scarlet fever heard of between Sept. 25th and Oct. 31st last, as many as forty occurred with unwonted suddenness in the three days Oct. 18th to 20th.

The story told by Dr. Russell is a complicated one, but the salient points may be summarized as follows: At one of the two milk shops lived a family, some members of which had suffered from scarlet fever whilst away from home, between Aug. 17th and Sep. 18th, when they returned to the shop, to remain there until the 26th. During this time it is impossible to conceive that they could have been free from infection, for even as late as Oct. 22d one child was found to be still desquamating on his feet, and another is stated to have been pulling bits of skin off his hands on Sept. 22d. Notwithstanding this, and although there was free communication between the residential part of the house and the dairy, no material (if indeed any) mischief appears to have accrued to the milk supply. But it is held that there are strong grounds for believing that during what must be regarded as an exceptionally dangerous period the infection became communicated to the second dairy shop, where sore throats and ill-defined ailments are admitted to have existed; and that it was essentially through the agency of these sufferers that the milk supply became infective. Incidentally, several points of interest are noted. In the first place, examination of the cows elicited no information as to disease. In the next place, there was a greater incidence of the scarlet fever in that branch of the business which carried milk to the largest houses, and Dr. Russell expresses his conviction that, whilst all users of the milk risked infection, the risk rose and fell with the quantity used.

The great lesson which the reporter desires to enforce is the folly of mixing up the milk business with family life. In this case the fortunes of two families were so interlaced with a milk distribution as to have insured risk on any chance occurrence of infectious disease. It is also noteworthy that the most trifling ailments, whether of man or beast, must not be thought beneath attention where milk supplies are in question. Recent research into the relation of diseases in the cow to the consumption by man of milk has abundantly shown this as regards the lower animals, and Dr. Russell's story enforces it again as to those minor throat ailments in the human subject which appear to be so trivial, but which are often singularly potent in their infectiveness.

The occurrence recorded is regarded as having been brought about by some ill-defined throat affections, and the result of consuming the milk was not only that of inducing the series of well-marked scarlet fever attacks to which we have referred, for there also followed in the line of the milk distribution a "cloud" of undefined but plainly specific illnesses of the nature of sore throat, vomiting, diarrhœa, etc.—*Lancet*, Dec. 1, 1888.

A Sextuple Birth.—A woman in Navarro County, Texas, is stated to have lately given birth to six living children, four boys and two girls, one of the latter being slightly deformed.

Quinine Depreciation. — Eight years ago the manufacturer's price for sulphate of quinine was ten and twelve shillings per ounce, while to-day it is worth about two shillings per ounce. This is perhaps one of the most remarkable instances of depreciation in the commercial value of a drug on record. This fall of price is, we are informed, due to the great extension of cinchona cultivation in Ceylon, which has of recent years been brought about. This go-ahead colony, on finding its coffee trade falling into decay, took to planting cinchona and tea trees, and in a few years this has proved very successful. It is estimated that, of a total demand of twenty-two million pounds of cinchona bark a year, fifteen millions now come from Ceylon. Moreover, the yield of the alkaloids from the Ceylon bark is much greater than that of any other country; the South American product being, we believe, the next competitor.—*Medical Press*, November 28, 1888.

Bacteria in Glaciers. — DR. SCHMELCK, of Christiana (*Centralblatt f. Bacteriologie*), has found immense numbers of bacteria on the Jerstedalsbræ, the largest glacier in Europe, as well as in the waters of rivers which receive water from the melting glaciers and snow. During their growth these bacteria formed a substance of a fluorescent color.

Under the microscope they appeared to be of the forms of small moving sticks, and resembled during their growth the fluorescent liquefacient bacillus. The writer finds a connection between the presence of these bacteria in the glacial regions and the greenish tints of the waters coming from these regions. During the melting of the ice, these bacteria grow with great rapidity. —*L'Union Médicale*, Nov. 22, 1888.

A Novel Precedent.—It is stated in *The Medical Press*, Nov. 28, 1888, that Mr. Bruce Clarke, of St. Bartholomew's Hospital, has recently been called into requisition by Sir Frederick Johnstone, in the treatment of his valuable horse "Friar's Balsam." Shortly before the last Derby "Friar's Balsam," which was the favorite, developed an abscess in connection with its lower jaw, the results of which incapacitated the horse from taking part in any engagements up to the present moment. A piece of loose necrosed bone having recently been detected, the operation of sequestrotomy became necessary, and it was for the purpose of carrying out this procedure in conjunction with the illustrious equine patient's ordinary veterinary attendants that the services of Mr. Clarke were secured. The operation was successfully performed recently, and presented no difficulty; the most noticeable feature in connection with it being the large amount of new bone which had formed round the sequestrum. It had been decided to administer chloroform in the event of the patient proving to be refractory, but the somewhat trying ordeal was patiently submitted to, without necessitating the use of the drug, and was completed in the course of about half an hour.

We presume that the operation of sequestrotomy would scarcely differ in detail to that which is performed by surgeons upon human patients, whether it happened to be required for the alleviation of the sufferings of a horse, a cow, or other animal. But the case probably would be different, if for instance a nephrotomy, or nephrectomy upon, say, a valuable mare, was ever deemed to be essential; undoubtedly, the great experience of this and other operations which some surgeons have gained would be of the utmost assistance, if not absolutely essential. But probably there would be difficulty about the horse's anatomy, and this would conceivably have to be taken into consideration. If, however, the precedent which Sir Frederick Johnstone has established comes to be followed largely in the future, operating surgeons, who have identified themselves with any particular procedure, might find it to their advantage to read, mark, and learn the various points of anatomical detail in connection therewith in the lower animals. There is surely no reason why animals of great value to their owners should not benefit by the experience of human surgery, in the same manner as man has become indebted to animals through the knowledge which has been evolved from them by experimental inquiry.

According to the *Med. chirurg. Rundschau*, Nov. 15, 1888, the Queen of Sweden has been ordered by her physicians to rise early, make her own bed, clean and dust her own room, then to take a brisk walk in her garden, return for breakfast, and subsequently to pass the greater part of the day out of doors. Her Highness follows these instructions to the letter, and finds that her nervousness is fast becoming a thing of the past.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 4 TO DECEMBER 10, 1888.

Williams, John W., *Major and Surgeon* (U. S. Army).—Is hereby relieved from further duty with the battalion of the Second Artillery, at Fort Wadsworth, New York Harbor, and will proceed to join his permanent station, Jackson Barracks, La.—Par. 3, *S. O. 256, Headquarters Division of the Atlantic, Governor's Island, New York City*, December 5, 1888.

Town, Francis L., *Major and Surgeon.*—Is relieved from duty at the post of San Antonio, Texas, and will report in person to the commanding officer Presidio of San Francisco, California, for duty at that station, relieving Major and Surgeon Henry B. Tilton, and by letter to the commanding general Department of California.—Par. 19, *S. O. 286, A. G. O., Washington, D. C.*, December 8, 1888.

Tilton, Henry R., *Major and Surgeon.*—Upon being relieved by Major Town, will proceed to West Point, New York, and report in person to the Superintendent of the U. S. Military Academy, for duty at that station, relieving Major and Surgeon Charles F. Heizmann.—Par. 19, *S. O. 286, A. G. O., Washington*, December 8, 1888.

Heizmann, Charles F., *Major and Surgeon.*—Upon being relieved by Major Tilton, will proceed to San Antonio, Texas, and report in person to the commanding officer of that post for duty, and by letter to the commanding general Department of Texas.—Par. 19, *S. O. 286, A. G.O., Washington*, December 8, 1888.

Finley, James A., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Buford, Dakota Territory, to take effect upon the expiration of his present sick leave of absence, and will report in person to the commanding officer at Fort Assinniboine, Montana, for duty at that post.—Par. 19, *S. O. 286, A. G. O., Washington*, December 8, 1888.

Johnson, Richard W., *Captain and Assistant Surgeon.*—Is relieved from duty at Fort Adams, Rhode Island, and will report in person to the Superintendent of the U. S. Military Academy, West Point, New York, for temporary duty at that station.—Par. 19, *S. O. 286, A. G. O., Washington*, December 8, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING DECEMBER 8, 1888.

Bransford, J. F., *Surgeon.*—Detached from the Smithsonian Institution, and granted six months' leave, with permission to go abroad.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING DECEMBER 8, 1888.

Stoner, G. W., *Surgeon.*—When relieved, to proceed to Detroit, Mich., and assume charge of the Service, November 26, 1888. Granted leave of absence for thirty days, November 28, 1888.

Carmichael, D. A., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, November 27, 1888. Relieved from duty at Washington, D. C., and ordered to Marine Hospital, Wilmington, N. C., December 3, 1888.

Devan, S. C., *Passed Assistant Surgeon.*—Detailed as Attending Surgeon and acting Chief Clerk Marine-Hospital Bureau, December 3, 1888. Granted leave of absence for eight days, December 8, 1888.

Urquhart, F. M., *Passed Assistant Surgeon.*—To proceed to Evansville, Ind., for temporary duty, November 30, 1888.

Brooks, S. D., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, December 8, 1888.

Seaton, Norman, *Assistant Surgeon.*—Ordered to examination for promotion, November 27, 1888. Granted leave of absence for twenty-five days, December 8, 1888.

Fattic, J. B., *Assistant Surgeon.*—Ordered to examination for promotion, December 7, 1888.

Magruder, G. M., *Assistant Surgeon.*—Relieved from special duty at Way Cross, Ga., December 8, 1888.

Kinyoun, J. J., *Assistant Surgeon.*—Granted leave of absence for ten days, December 8, 1888.

Vaughan, G. T., *Assistant Surgeon.*—Granted leave of absence for twenty-three days, December 8, 1888.

Guiteras, G. M., *Assistant Surgeon.*—To proceed to Savannah, Ga., for temporary duty, December 3, 1888.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, DECEMBER 22, 1888. NO. 25.

ORIGINAL ARTICLES.

DIABETIC GANGRENE.[1]

BY WILLIAM HUNT, M.D.,
SURGEON TO THE PENNSYLVANIA HOSPITAL.

THE literature of this subject is vast as to diabetes, and as to gangrene in general but meagre, and in some respects surprising as to diabetic gangrene. There are about twenty pages of the great *Index-Catalogue of the Library of the Surgeon-General's Office* given to each of the subjects of gangrene and diabetes. One has to search sharply for anything associating the two. The French seem to have the best of it up to 1868. There are but two monographs catalogued, one by Giron, Paris, 1881, and one by Peyrot, a student, 1878, who reports, I think, thirty-nine cases. Then ten isolated cases are reported in the French journals from 1856 to 1868; most of these cases are in *L'Union Médicale.*

These patients where the sex is given were males. Mental troubles are more than once given as a cause. Intermittence in the appearance of sugar is noted in two cases. The majority of these cases were in the better walks of life.

But the work worthy of a higher dignity of title than a monograph is by Marchal (de Calvi), Paris, 1864: *Recherches sur les Accidents Diabétiques et Essai d'une Théorie General du Diabète.* He claims to be, and with some force, an original discoverer. He places 1852 as the dividing line between the periods when, in the first, gangrene occurring during the progress of diabetes was regarded by all as a simple coincidence, and the second, when gangrene occurring among diabetics it is the result of inflammatory conditions dependent on the disease and due to the irritation of the peculiar products of it, which are thrown into the blood and tissues. This last is the so-called discovery as I understand it, and there is some discussion as to priority, for Hodgkin, of London, about the same time, as we shall see, took the same view. Marchal was, of course, criticised by his own people, one of whom was Charcot. The cases, facts, and comments are divided into two series, those published before the discovery, and those published after it. The collection is really remarkable, both as to number and as to character of cases, and especially so when contrasted with German, English, and American reports and literature on the subject up to that time.

Marchal's book has reports of one hundred and thirty-three cases of all sorts of what I may call extra lesions occurring during the progress of diabetes, collected both before and after the discovery. In the notice of three cases of Carmichael, Adams, and Marsh in the series before the discovery, these remarks occur: "The mention of these cases does not give place to any general deduction. The question to know is whether there exists a necessary relation between gangrene and diabetes, a question which appears to have been totally lost from view." Of the 133 cases, gangrene *per se* occurred in 57. The seats of it were, in the lower extremities 35, lungs 7, hand 3, pleura 2, shoulder 1. Nucha (not ordinary carbuncle) 2, nose 1 (necrosis). Plantar aponeurosis 2, ribs necrosis 1, forearm 1, back 1, gangrenous plaques 1—although the latter are reported in several other cases. I shall not pretend to particularize these cases, I refer any one interested to Marchal's book. My purpose is to show that gangrene in diabetes is something more than a coincidence. The extraordinary case No. xxxix. almost of itself sustains the position. A man of fifty-eight years came under observation. The case is given in detail, and is thus summed up by Marchal:

> "Thus in the space of six years from 1850 to 1856, the patient was attacked successively with, first, a necrosis of the first phalanx of the second toe, which was amputated; second, with a sphacelus of the whole foot and inferior part of the leg of the same limb, which was also amputated; third, with a skin gangrene of the other leg which gave place to a callous ulcer; fourth, with a gangrenous inflammation of the base of the great toe, which left a deep and intractable ulcer; fifth, with a sphacelus of the first four toes, which were also amputated."

Through all this melancholy history, no suspicion of diabetes was raised until, attention having been called to the case through Marchal's labors, the urine was examined, and the man was found to be a positive diabetic, and he was proved to have been one for years. Other multiple cases are reported.

This by no means exhausts French literature. Verneuil, Nélaton, Lizé, Peter, Charcot, Demarquay, Peyrot, Chauvel, and others have done their share in the observation of cases, and in elucidating the subject.

I will now take a short notice of German, English, and American work in this line. The great *Index-Catalogue* I referred to is dated 1882, and in going twice over those thirty-seven double-columned pages

[1] An abstract of a paper read before the Philadelphia County Medical Society, November 28, 1888.

devoted to diabetes and to gangrene, I found no monograph on diabetic gangrene in German. There is one case of it reported by W. Roser, of Marbourg, and an article by him upon it in the *Medicinische Wochenschrift*, Berlin, for January 1, 1880. Billroth, in his *Surgery*, merely mentions diabetes mellitus as a possible complication of gangrene. Hodgkin read a paper before the Harveian Society, session of 1852–53 (*Journal of the American Medical Association*, 1854, p. 915), and, aside from this, there is no notice of an English article or case in the *Index*. There is one Italian case reported.

The Marbourg professor (Roser) grasps the situation thoroughly. He says: "When an otherwise healthy appearing man has a gangrenous or ulcerous disturbance, for example, on the foot or hand, when one can think of no affecting cause, when all irritations with carbolic acid, etc., are in vain, it *is high time to think of diabetes*."

He attributes the past failures of diagnosis and consequently of proper treatment to three causes:

First. To the fixed, classic, and preconceived notions as to diabetes, viz., that an otherwise well-looking and well-nourished person cannot have it; that the usual symptoms, thirst, emaciation, etc., be present; so to say, cachexia. (These points I can practically confirm as well taken.)

And what are we to think of this?

"*Second.* In gangrenous destructive processes *now*, one takes it for granted that a rotting, generating, chink-fungus (literal, Spaltpilz) has got in from without and is the cause of all the trouble, and one is obstinately striving to stop or make impossible the vegetation of this chink-fungus, and to control the advancing sepsis by still more obstinate applications of carbolic acid (he quotes carbolic acid as the type of the germicides, for he has u, s, w in some places), and so long as one remains in this blind thought, he naturally seeks for no other etiology.

"*Third.* Even when the diabetes is discovered, the doubt is set up whether it has anything to do with the gangrenous destruction, and then it is still more strongly doubted whether a treatment appropriate to the case, both constitutional and local, can mend matters where there is a high grade of diabetes." Cases are then given, some of which are taken from Marchal. A plausible explanation of some cases of otherwise unaccountable sloughing after operations is suggested in the possible presence of diabetes. I came across some such cases. Roser supports Marchal's axiom, "One must always think of diabetes and examine the urine, when one has to deal with obstinate and repeated cases of furuncle, anthrax, diffuse phlegmon, gangrene or sphacelus, and the like affections." (This is all I shall translate, for I find there is a longer abstract from this article of Roser's in the *Chicago Medical Gazette*, vol. i., 1880.)

Since Roser's paper the Germans have paid more attention to the subject. I find that in the *Centralblatt für Chirurgie* König "points out" what this article shows has been long ago known, that diabetic patients are subject to a low grade of inflammation; and he issues the dictum, "that in all cases of spontaneous gangrene the urine should be examined for sugar, and in surgical complications of diabetes the first and most persistent treatment should be antidiabetic." In the article upon surgical diseases in the *Annual of the Universal Medical Sciences*, 1888, collated by Dr. Christopher Johnston, of Baltimore, an interesting case of diffuse gangrenous phlegmon in a diabetic is reported, and after some remarks and extracts as to the causes of the various gangrenes, this rather heavy quotation closes a paragraph: "The differential diagnosis is simplified since antisepsis has detached gangrenous septicæmia from the morbid coexistences which complicated its symptomatic category."

English and American literature on diabetic gangrene amounts to almost nothing. After Hodgkin's paper, 1852, the affection seems also to have been totally lost from view, and no one appears to have taken any especial interest in the subject. Hodgkin is the one with whom the question of priority was raised with Marchal. He reports several cases, one that of a young man who, after venesection for diabetes, developed an acute pneumonia. He died, and gangrenous softening was found surrounding tubercle. Another case, in an elderly gentleman, with symptoms of the same kind; no post-mortem. Two more with gangrenous feet. Then follows this important remark: "Reflecting upon the evident tendency of diabetes to impair the vitality of the tissues, I could not but attribute it, not to accident, but to an essential connection between the disease and the function of nutrition."

After this I found no monograph on the subject or particular reports of cases in our language. In only one of these books do the words *diabetic gangrene* occur in the index. Even the great *Index-Catalogue*, with much more significant headings about gangrene, has no heading about *diabetic gangrene*.

Whilst writing this, Schmidt's *Jahrbücher* for October, 1888, comes to hand. In it there is the latest general article on diabetes mellitus, a review, twenty-eight pages in length, by Dr. Louis Blau, Berlin. The paper opens with a list of seventy-four different articles on the subject from 1886 to date, but only three refer to diabetic gangrene; one by König, "A Revision of the Knowledge as to Capital Operations (Amputations) during the Progress of Diabetic Gangrene," and two cases (both French) of diabetic gangrene of the external genitals are reported. Blau gives credit to König for confirming the frequent tendency to inflammations giving

rise to gangrenous processes in diabetics. This (the gangrene) may appear to be spontaneous, but it calls for an examination of the urine if that has not been made. He as well as König is a firm believer in these inflammatory gangrenous affections being dependent upon specific microbes, as do other incidents of diabetes. The easy passage into gangrene is favored by the less resisting power of the tissues than when in health, and, also, it may be, the presence of arterial sclerosis.

The diabetic is at a disadvantage with the sound man, in that there is a greater tendency in him to take up the microbes in his tissues and into their fluids, as these offer a better nourishing nest for the microbes. Compare König's with Roser's views. Roser ridicules the chink-fungi as the producers of the gangrene *in situ* and from without. And, agreeing with this, König gives them a nidus within from which to operate. This is but a repetition of what I long ago stated in an address before the Academy of Surgery in this city.

The reason that a sick man is at a disadvantage as compared with the well man is that, the former is a harbor for the products of disease (molecular necrosis). These products are the food of the bacilli, and where the food is *there* they go. They do not differ in this from all other organized crea tures from man to microbe. How far they are the *causes* of disease is the business of the mycologist to find out. But little as yet has been established as a *certainty*, and, therefore, it is all the more incumbent, in practice, to guard against their possible presence and specific power. König thinks that capital amputations had better be let alone so long as the urine is rich in sugar. He also says there are cases in which the surgeon must be the judge. It may be worse to refrain from amputation, and thus let the patient contend with two serious conditions, the disease and the gangrene.

Thus up to this time but little has been added to our real knowledge of diabetic gangrene since 1852, the days of Marchal and Hodgkin. The disease was there, the theories were there, the cautions and advice and treatment. All were present but the bacillus, and he was lurking in the dark. The surprising thing is that, as in the expression already quoted, the interesting and important subject should have twice "been almost totally lost from view."

König gives the French great credit for their researches and papers and reports. He quotes one of the latest French observers, P. Redard, upon "De la glykosurie ephèmère dans les affections chirurgical" (*Revue de Chirurgie*, 1886, No. 8 and No. 9, S). He reports two most interesting cases, one aged seventy, and one forty, occurring in 1886, both having diabetic gangrene and atheromatous arteries. He amputated a thigh in each case, under strict antisepsis. Both recovered rapidly, and there was a remarkable diminution of the sugar in both, and at times it wholly disappeared. He argues to himself in this quaint way: "During the past year I took the knife in hand, for I said to myself, 'if thou continuest to treat the case in this way (the expectant), the old man, upon whom his family depends, will surely go to the ground; to be sure, he may also go to the ground after the amputation, but possibly he may live if antisepsis is strictly carried out.'" And live he did. He then issues his dictum: "When in diabetic gangrene, in spite of antidiabetic treatment constitutionally and antiseptic treatment locally, the general diabetic symptoms and the local phlegmonous appearances do not disappear or ameliorate, and a further perseverance in the treatment simply increases the danger for the patient, then a radical operation, in order to try to save the patient's life, must be performed. These operations will, as a rule, be amputation."

We will now leave the history and literature of diabetic gangrene and take up the records of experience with a few practitioners here at home.

I think any fair-minded person would say that, if we can develop so much in such a limited range of inquiry and in such a short time, and then ask himself what might be found out by further inquiry, not only among ourselves but throughout the country, diabetic gangrene is certainly something more than a mere coincidence of the disease diabetes. I sent out a small number of inquiries to physicians and surgeons in our city, selecting those whom I thought would know most about the matter, and also made personal inquiries of some. The questions were: 1. How many cases of diabetic gangrene have come under your notice or treatment? 2. What was the social standing of the patients—wealthy, medium, poor, hospital, or private—their ages and sex? The next question would appear to be rather a side issue, but it was made, in passing, to ascertain whether what is almost universally stated about diabetes is legendary, or is the result of carefully collated observation; it also bears upon gangrene of the pulmonary organs—it is: 3. How many of *all* of your diabetics had consumption, or died with it, and was there anything like gangrene of the lungs?

I received thirty-two answers, including myself; of these, seven had seen no gangrene, and twenty-five reported sixty-four cases. I was particular to eliminate double reporting, and that the cases should be known by actual examination and record to be diabetic.

The ages, where given, were: 1 between 30 and 40; 2 between 40 and 50; 11, 50 and 60; 12, 60 and 70; 10, 70 and 80; 2, 80 and 90. One exceptional case of Morton's, a diabetic aged nineteen, in whom gangrenous sloughing took place after a needle operation for cataract, is down, and one of

S. Solis Cohen's cases was a young female. Of the sexes given, 24 were females and 25 males. Of social standing, where given, 16 were wealthy, 23 medium, 9 poor, and of these 6 were in hospital. Dr. Brush reports a most interesting case of a female diabetic aged forty, a lunatic. She had large ecchymoses on her limbs which became gangrenous; she died. The autopsy revealed a gumma the size of a large pea in the floor of the fourth ventricle. The seats of gangrene were reported as: Lower extremities—below the knee 37, thigh and buttock 2; nucha (not ordinary carbuncle) 2, external genitals in female 1, lungs 3, fingers 3, back 1, eyes 1.

Had I allowed myself to include ordinary carbuncles and boils in the gangrenes, to which class they belong, the list would have been greatly increased.

We will now take up the third question: How many diabetics have consumption or die of it? Is it a legend?

Marchal says he has known of but few diabetics to die of consumption, but he is rather inclined to adopt the general view. A pamphlet published at Oxford in 1745, called "A Mechanical Inquiry into the Nature, Causes, Seat, and Cure of Diabetes, with an Explication of the most remarkable Symptoms," says, if the patient be "too far advanced by a neglect of proper remedies, the person so affected in reality dies of *a* consumption."

Here are the answers elicited by my third question.

Thus among the diabetics noted, in all 144, we find but 11 deaths from phthisis. And yet Dr. Thomas S. K. Morton in an essay on diabetes has somewhere picked up a statement, from an authority whose name he has missed, that 43 per cent. of diabetics are killed by phthisis sooner or later. Roberts, 1885, says that one-half of them die with cough, catarrh, phthisis, and other lung complications, when prolonged to the third year, and Aiken quoting him, evidently in mistake, says to first year. Dr. George B. Wood says, "In the great majority of cases the patients die of phthisis." Drs. Da Costa and Longstreth, whose opinions are entitled to great weight, make general statements in their answers, Dr. Longstreth cautiously stating it is *called* consumption. From a conversation with Dr. W. Pepper, who gives no return, he adopts the consumption view, and Dr. J. Cheston Morris coincides.

S. Solis Cohen says: "I cannot find accurate statistics as to consumption. Think at least one-third of the cases that I have seen died of pulmonary affections." Griesinger, quoted by Niemeyer, says "one-half of the cases die of phthisis." Watson says, "some think phthisis universal in diabetes, but it is not so." Flint, quoting Ogle, reports fourteen cases, with deaths from scrofulous or tubercular disease in seven of them. Niemeyer says "that pulmonary tuberculosis hastens the fatal issue." What one of latest authority, C. Hilton Fagge (1886) says, is important. "Diabetes is frequent cause of *a* phthisis" (almost the 1745 expression), which is peculiarly pneumonic in character. Its relation to ordinary pulmonic disease is still doubtful, and after giving certain facts he says, "hence it supports very strongly the opinion that the pulmonary affection in the disease is not of a tubercular origin." He kept notes of the diabetic deaths in Guy's Hospital, and in twenty years out of 40 such deaths, 17 died of phthisis.

It will be noticed how indefinite and general some of the statements above given are, without figures to sustain them. Blau, in his review in the late number of *Schmidt's Jahrbuch*, already quoted as to gangrene under the head of "diseases of the lungs in diabetics," says, in substance, "that the question whether so-called diabetic phthisis is the same as ordinary tubercular disease of the lungs is only to be settled by the proved presence in both of the same bacillus." Authorities, Inmérman, Rütimeyer, von Merkel, and von Leyden, are quoted as having observed absolute differences between the two diseases, both from examinations of sputa and also by post-mortem. A case is given in which, during life, the patient had all the symptoms of tubercular phthisis. Except that bacilli were not found in the sputum, and at the autopsy the appearances were totally different from those found in that disease, and these appearances are noted in the text. The bacillus tuberculosis was nowhere found. A case having almost the same post-mortem appearances as this one is reported by Da Costa, in the *Philadelphia Medical and Surgical Reporter*, vol. i. page 8, January, 1887. The bacillus, as in the preceding case, was absent.

This record, considering the large number of consumptives in communities like ours, would seem to show that the cases in point *are consumptives with supervening diabetes, and not diabetics with supervening consumption.* I leave the question for wiser heads to determine. Diabetics die, as my inquiries and experience confirm, with coma, œdema of the lungs, and exhaustion.

I will not report the minute particulars of my own cases. To do it would not add to the general knowledge of the subject; but I will sum them up and relate, I think, some interesting points. I have 9 cases to speak of, 5 of which were gangrenous, and 3 rapidly advancing toward it when death overtook them. One was peculiar and unverified; all are dead; one was in medium circumstances, all the others decidedly wealthy. The ages ranged from 50 to 93, 4 of them being above 70; 5 were women, 4 men. In none of them was the classical emaciation present at any time. The disease was intermittent in two. The urine in one of these cases would range as low as 1010 specific gravity, with slight traces of sugar, and then advance to 1030–

1035 with evidence of abundance of it. Another case also ranged from low to high at varying times, but not so marked as the first. This teaches us not to be too sure in saying, as we all often do, "there's no use looking for sugar in that," when the gravity is 1020 and under. Austin Flint, Jr., reports a diabetic case with the gravity of 1011½.

The seats of the gangrene in 5 of my cases were: foot and leg below knee 3, thigh and buttock 1, nucha (not ordinary carbuncle) 1.

Gangrenes, as a rule, are generally of the soft or humid kind. This, however, depends much upon the part involved. Where the tissues are succulent, the gangrene will also be of that character; where they are composed mostly of skin, tendon, and bone they will approach the senile gangrenes in appearance. The remark made by Holmes Coote is also applicable. He, speaking of the terms used in the descriptions of gangrene in general, as dry, moist, etc., says "when death of a part takes place rapidly, the vessels still contain blood and the usual fluids, and the mortified parts are moist and soft. When, on the other hand, the death is slower, there is usually a deficiency of the supply of blood, the vessels become empty and the part hardens and withers." There is this distinctive difference between the diabetic and the senile gangrenes according to my observation. The former rarely or never present the clear-cut line of demarcation between the dead and living parts that is characteristic of the latter. This fact, with a want of the decided dryness and shrivelling of the senile variety, should suggest the diabetic form, but in any case the urine should be examined.

I have this interesting observation to make about one patient:

A lady, aged ninety-three years, who did not have gangrene. This past summer she was in more than usual good health. I know positively she had no diabetes until shortly before her death; not only from the want of rational symptoms, but also from recent examining of the urine. I went with her to Newport in June, and left her there. In passing through Newport in the latter part of July I saw her; she was perfectly well, and her delight was to drive twice a day. I was at Bar Harbor in August, and received a telegram asking me to come at once to see her at Newport. She was dead before I arrived, and I learned from Dr. Cleveland, of New York, who attended her, that she was sick but eight days, and had developed an *acute* diabetes, which rapidly proved fatal. I had no hesitation in saying that had she survived the first fierceness of the attack she would have had to contend with gangrene. The opinion was given, not because of her age, but because of the diabetes.

Sugar in the urine has been developed by falls upon the head, and also in certain forms of apoplexies, but I have just made a, to me, most interesting observation; for I find none like it reported.

In January, 1885, a wealthy gentleman, a long-time patient of mine, of most vigorous constitution, then seventy-six years of age, had an apoplectic seizure, from which he reacted, and finally settled down into a chronic semi-paralytic. On the 9th of this November, 1888, in the evening, I was suddenly summoned to see him by his son-in-law, a physician. He was comatose, face very much flushed, temperature 103°, pulse 120, and had Cheyne-Stokes respiration. There was no increase of paralysis of the extremities. Basic effusion was diagnosed. Under treatment he improved, and was very much better by morning. His urine during his sickness had been repeatedly examined, and, with the exception, at times, of slight traces of albumin, there was nothing abnormal. On my morning visit, mindful of the symptoms of the night before, I proposed an immediate examination of the urine. This was done, and decided sugar reactions were produced by fresh Fehling solution.

Here was auto-physiology. Temporary pressure upon. and disturbance of the respiratory centres, and also pressure upon the diabetic regions of Bernard. As the effusion disappeared with the mending of the patient's condition, the sugar has gone with it, and now the tests give no traces of it. It will be interesting in this case, if the patient survives, to note both as to sugar and as to gangrene.

I had written thus about this case, when I had occasion to make another note. I saw the patient daily for four or five days, when it looked as though matters were about to resume their old course, and I made the next appointment for two days ahead. But on the 15th I was summoned again. The patient was in deep coma, breathing 60 per minute, pulse 150. *The urine gave sugar reactions more decided than before.* Respiration could be stopped by reflex at once—that is, by any peripheral irritation about the mouth or thorax. This would occur on an attempt to give liquids; then, after a few automatic adjustments, the breathing would go on as rapidly as before. Within two hours death took place. There was no filling of the bronchi with mucus. The patient simply stopped breathing. Pressure on the pneumogastric centres was profound. It was a quick and permanent application of the air-brakes.

In practice we all have our puzzling cases. Some we clear up during the life of the patient, while others die, and, it may be, not until long afterward does the knowledge come to us of what probably was the matter. Some similar case, or some reading or discourse may give us light. I recall one such case in the direction of the present paper. A distinguished, wealthy lawyer was attacked with an obscure disease. It was rapidly fatal. Dr. James Darrach was the physician, and I was sent for in consultation. It is not necessary to give the details. I cannot remember whether the urine was examined; certainly, I think, not for sugar. Symptoms of sepsis were marked, and among the incidents there

was enormous swelling of the abdominal walls, both anteriorly and laterally. I made free and deep incisions into the flanks, and from the cellular tissue mephitic gases and fluids, like those that flow from moist gangrenes, came in abundance. I think, in the light of what has been developed in my researches, that that patient died from an acute attack of diabetic gangrene.

There was no consumption, or even a suggestion of it, in *any* diabetic of whatever kind that I have seen, except the one I vaguely remember as being in the hospital when I was resident. I now submit, from what we have heard, whether among all the gangrenes mentioned in books and indexes, viz., traumatic, hospital, senile, symmetrical, spontaneous, puerperal, visceral, infantile, congenital, cutaneous, mephitic, spreading, exanæmic, arterial, static, dry, wet, moist, humid, white, etc., the much-neglected diabetic gangrene should not be included? We have seen that *diabetic* gangrene makes, with good reason, higher pathological claims to notice than most of the kinds above given.

It is rash to make assertions. I, however, will say I should not be surprised to find, after thorough investigation, that in *numbers*, in civil practice, diabetic gangrenes would be found to hold the second place, traumatic gangrenes, including those from frost-bite, burns, and scalds, only exceeding them.

I shall only glance at the theories of diabetes. Faults of the nervous, vascular, and visceral symptoms have been, respectively by some, and *all* together by others, considered to be at the bottom of the trouble. I incline to deranged vaso-motor effects (stasis or paralysis of the vessels, with or without atheroma or arterial sclerosis) as most explanatory. What better fact could we wish to sustain this position than the influence of the disease on virility, a condition almost absolutely dependent upon normal vaso-motor function? Men with diabetes are mostly impotent; Marchal says, always so. He gives some strange cases of marital infelicities, such as unfortunate charges of infidelity by wives against their husbands, when really the poor fellows were helpless diabetics. One of these is described as a veritable athlete, and he was an example of the fact that in this disease great and peculiar strength in one direction may for a time coexist with great and peculiar weakness in another.

The knowledge of diabetes is ancient, and, in looking over the old records, I thought that I might stumble on one of diabetic gangrene, but in this I was disappointed.[1]

[1] Coincident with the reading of the proof of this paper, I received (December 6, 1888) a copy of the Berliner klinische Wochenschrift, No. 47, November 19, 1888. It contains the first part of an article by Dr. Max Schüller, of Berlin, called "Ein Beitrag zur Kenntnisse der phlegmonösen und gangränösen Processe bei Diabetes." The author also intimates that gangrene, etc., is more than a mere coincidence in diabetes. He says: "While many cases of glycosuria—as, for example, those following experimental researches upon and injuries of the central nervous system—have found an essential clearing up, the relation between pus formations, furuncle, carbuncle, gangrenous process, and glycosuria is still quite dark. The view that these cases are essentially only complications of an unrecognized diabetes has still its adherents. I now have nothing new to offer as explanatory, and will consider this part of the subject no further."

THE DIAGNOSTIC VALUE OF HEMORRHAGE FROM THE EAR IN HEAD INJURIES.

By CHARLES D. BENNETT, M.D.,
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The object of this paper, while admitting that hemorrhage from the ear is a frequent accompaniment of fractures of the base of the skull, and therefore of a certain value in the diagnosis of such injuries, is to show that serious aural hemorrhage may occur after severe head injury, and yet be unattended with any serious damage, such as fracture, to the bones of the skull.

If this proposition can be maintained with any reasonable evidence of truth, the value of such bleeding as a factor in diagnosis is evidently much lessened, and the difficulty of making a diagnosis of fracture of the base correspondingly increased.

Authors of works on surgery differ considerably in their estimates of the value of this sign, but, with one notable exception, a fair summary of their opinions might be given—application of sufficient force to the head, evidence of some brain injury, free and prolonged hemorrhage from the ear, with or without other symptoms; and then follows, as diagnosis, fracture of the base of the skull. It must be admitted that in a majority of cases this summary would be correct, or at least would never be disproved, for it must ever be borne in mind that a fracture of the base is always an obscure injury, even when, as usually, resulting in death; but, when followed by recovery, the justice of the diagnosis must remain in doubt, for the cases that may be verified by subsequent post-mortem examinations are so few as to be hardly worth considering. When the accident has resulted in death, an autopsy has often vindicated the diagnosis: but, on the other hand, cases are on record in which, after such a conjunction of symptoms having occurred, and such a diagnosis having been made, the post-mortem examination showed no fracture whatever, and occasionally a case occurs resulting in recovery, in which, with the above-named symptoms, is found some anatomical fact which would seem to belie the diagnosis. Such a condition occurred in a patient recently treated in St. Michael's Hospital, in the service of Dr. J. C. Young:

Paul B., aged twenty-eight, on February 3, 1888, fell in an elevator through seven stories. A roll of hides had become wedged between the elevator and

the shaft-wall, and the patient, standing on the elevator, after allowing the rope to unwind to its fullest extent had endeavored to force the car past the obstruction by jumping, so that, when the obstacle was suddenly overcome, the fall of seven stories was uninterrupted. One of the large supporting beams of the cage fell after him, striking him in the face, and causing a fracture of the alveolar process of the lower maxilla. The patient was seen within three-quarters of an hour after the accident. He was then conscious, but very irritable, and presenting no other brain symptoms. Pupils equal and normal in size. The hemorrhage was profuse from the nose, and from both ears. No paralytic symptoms were discoverable.

The next day the hemorrhage from the ears continued in lessened amount, and a patch of subconjunctival ecchymosis had appeared on the left side. General condition improved. The hemorrhage ceased during the following night. Two days later a tumefaction appeared behind both ears, which had every appearance of being inflammatory, but which disappeared in two days more by the use of cooling lotions. Seven days after the injury, the ears were examined by Dr. T. Y. Sutphen, whose report I give in full:

"After removing the clot found in both ears, I found the external canal red, and swollen slightly anteriorly and superiorly. No wound could be detected. Membrane red, but not perforated. Hearing watch four feet from each ear, or nearly normal. No hemorrhage in middle ear."

On the following day, Dr. Sutphen made a verbal addition to his report, saying that, in his opinion, the base of the skull had been fractured, and the blood had perforated at the side of the membrane, not through it.

This patient continued to improve, suffering only from occasional headache and vertigo, and with these symptoms continuing in steadily lessening severity, he was, on March 5th, discharged, practically well.

The anatomical fact spoken of is, of course, the non-rupture of the membrana tympani, and the question raised would be on the possibility of a hemorrhage, due to a fractured base, escaping from the ears past an unruptured membrane.

Hewitt, in Holmes's *System of Surgery*, vol. i. p. 629, says even if there be a fracture of the petrous bone communicating with one of the great venous sinuses, and the membrana tympani be not ruptured, there can be no bleeding from the ears, or, in other words, he denies the possibility of blood effused into the cranial cavity finding its way into the external canal, unless it flows through a tear in the tympanic membrane.

Nancrede, in the *International Cyclopædia of Surgery*, vol. v. p. 35, quotes Hewitt on this point, agrees with him, and is even more plain and positive, he expressly stating that a recent rupture of the membrane must be made out, saying, further, that if the membrane be not ruptured, and show no evidence of blood pressure from within, the fracture, if existing at all, may be said not to involve that portion of the petrous bone where lie the aural parts.

If these authors are correct, then our patient had no fracture of the base, or, at least, the hemorrhage had no connection with it. Truth, however, compels the statement that their opinions must be qualified, for Roosa, in his *Treatise on Diseases of the Ear*, mentions a case of Zaufal's, in which a fracture had run through the upper wall of the pyramid, the opposite wall of the tympanum, and the upper wall of the osseous portion of the auditory canal, leaving the membrana tympani uninjured, yet hemorrhage from the ear, due to the injury, had occurred. But such cases as that just quoted must be very rare, and, while making necessary a slight qualification of the opinions previously given, can hardly affect their general truth.

With this view other authors, so far as they consider this point, seem to agree, and I have been able to find no written opinion to the contrary, save in the *Archives of Otology*, vol. x. p. 314, where Dr. J. D. Rushmore reports a case of hemorrhage from the ear as probably due to fracture of the skull—merely a summary of Dr. Rushmore's article, not in author's language:

> The case was that of an old gentleman, previously in good health, who, while walking in the street, and having for a few minutes a peculiar, uncomfortable sensation in the head, suddenly fell backward and toward the left side, became unconscious, and lost, in a few minutes, about sixteen ounces of venous blood from the left ear. He regained consciousness in a few hours, and for several days suffered from vertigo, severe frontal headache, tenderness around the left auricle, and dulled hearing in the left ear. There was no more hemorrhage, and on the sixth day a purulent discharge appeared, the patient becoming delirious; but gradually the symptoms disappeared, and the patient became, with the exception of some impairment of hearing power, as well as before.

Here is no history of traumatism, there being no evidence of bruising, save for a slight ecchymosis below and behind the ear—and certainly fracture of the base does not occur without violence, while the peculiar sensations preceding the fall, the fact of the falling being toward the side from which the hemorrhage occurred, both of which symptoms point clearly to some lesion in the head preceding the fall, and being a cause, not the result, of the loss of equilibrium, seem to be entirely ignored. The membrana tympani was later shown to have been torn, but for the first two weeks subsequent to the accident the case had been considered as a fracture of the base, with no rupture of the membrane.

Let us, however, consider the evidence adduced to show the possibility of hemorrhage from the ear without fracture of the base, and with or without rupture of the drumhead.

Bell, in his *Institutes of Surgery*, p. 104, says, "hemorrhage from the ear may be dependent on

mere concussion," and in *Braithwaite's Retrospect* for January, 1850, p. 102, is given an abstract from an article in the *Medical Gazette*, by John Adams, as follows:

"Hemorrhage from the ear is, in my opinion, not pathognomonic of this injury (*i. e.*, fracture of the base); it is so commonly found in slight cases of injury to the head, and in cases which occur without any untoward symptoms, that I feel justified in discarding it as a sign wholly to be relied on." Again, "Separately and singly, although it is an important indication, I do not rely upon it as conclusive of the existence of such an accident."

A. H. Buck in the *American Journal of Otology*, vol. ii. p. 277, writes: "The mere fact of a copious hemorrhage from the ear does not justify assuming the existence of any such serious lesion as fracture of the petrous bone and laceration of sinus."

I have been able to find a few apposite cases in medical literature. Roosa gives (*Diseases of the Ear*, pp. 324 and 501) two cases of concussion of the brain from a blow on the head, causing hemorrhage from one or both ears, and resulting in recovery. In neither of these could any rupture of the membrane be found.

Warren, in *Surgical Cases with Observations*, p. 14, mentions a similar case caused by a fall from a horse, with bleeding from the ears and unconsciousness and ending in recovery.

E. J. Spear, in the *American Journal of Otology*, vol. ii. p. 107, reports the case of a teamster falling head first from the high seat of a furniture wagon and striking upon his chin. He became immediately unconscious, had a considerable hemorrhage from the ear at once and an oozing of blood for twenty-four hours, with steady pain in the ear but good hearing. Eight days later a fracture of the anterior inferior osseous wall of the auditory canal was discovered. The membrana tympani had not been ruptured.

Hulke, in the *Lancet*, 1879, vol. ii. p. 689, reports the case of a boy, who slipping while running, fell striking his chin on the ground. He was found unconscious and with free bleeding from one ear, which continued for five days. Perfect recovery ensued. At the end of two weeks the membrana tympani of the ear was examined, and a recent scar found. Mr. Hulke believes all the symptoms to have been caused by the violent impact of the condyles on the floor of the tympanum.

Gauthier, in an "Inaugural Thesis on Hemorrhage from the Ear of Traumatic Origin," reviewed in the *American Journal of Otology*, vol. i. p. 293, sums up the evidence, and to the reviewer's mind, at least, shows conclusively that otorrhagia after severe head injuries is not necessarily a symptom of fracture of the petrous bone. Gauthier concludes that aural hemorrhage, following a fall or blow on the head, may depend on, 1st. A lesion of the auditory canal, such as laceration of the skin of the canal, a loosening of skin and mucous membrane of the ear without rupture of the drumhead, or to a fracture of the anterior wall of the bony canal; 2d. To a fissure of the membrana tympani or of the mucous lining of the drum; and 3d. To a fracture of the squamous or petrous portions of the temporal bone.

To illustrate how hemorrhage from the ear, not traumatic, might, not unreasonably, be mistaken for bleeding due to an injury, the following two cases reported by Orne Green, in the *American Journal of Otology*, vol. iii. p. 135, may be cited.

Both were cases of vicarious menstruation, in one the blood flowing from what subsequent growth showed to be a sebaceous tumor in the meatus, the drumhead being unbroken, and in the other from the tympanic mucous membrane, the membrana tympani having been previously destroyed. Had either of these patients sustained a head injury during menstruation and fallen into strange hands, a basal fracture might very probably have been diagnosticated, but with no more justice and probably no more correctness than in Rushmore's case.

Admitting then that free traumatic aural hemorrhage may occur without fracture of the bone, let us look at the subject from another standpoint.

The notable exception, previously referred to, was Erichsen. He writes (*Science and Art of Surgery*, vol. i. p. 536):

> "Bleeding from one or both ears, after an injury to the head, cannot, by itself, be considered a sign of much importance. If, however, the hemorrhage be considerable, trickling slowly out of the auditory meatus in a continuous stream, if the blood with which the external ear is filled, pulsate, and more especially if the bleeding be associated with other symptoms indicative of serious mischief within the head, and if it has been occasioned by a degree of violence sufficient to fracture the skull, we may look upon the hemorrhage as strong presumptive evidence that a fracture of the base of the skull has taken place."

Here is a fair description of our case. The hemorrhage was copious, calling for plugging of the meati, it trickled away in a continuous stream; there were the other symptoms of severe concussion of the brain, and the man had fallen seven stories landing upon his feet, and had again been struck in the head by a heavy beam that had travelled down the seven stories after him. But Erichsen, with all these signs present, holds that the evidence is still only presumptive.

On this point Gauthier claims that after an injury from a fall upon the head, there may ensue loss of consciousness for a longer or shorter time, followed by dulness of intellect for several days, loss of hearing on one side and hemorrhage from the ear, even also a serous aural discharge, and all these symptoms be due to a ruptured membrane with no fracture

present. In support of this view he adduces nine cases.

Accepting these theories as true, it is difficult to see why our case should be diagnosticated as a fracture, and it becomes necessary in most cases of head injury to hold the diagnosis in abeyance until recovery has shown the improbability of such fracture being present, or an autopsy has positively established the truth.

The mere fact of recovery having occurred must throw a strong doubt on the diagnosis. The importance of the contiguous organs, not merely to intellect, but to life, and the force necessary to fracture the strong basal bones, with the nervous shock accompanying, must clearly justify the dangerous prognosis attached to such an injury. If such cases as have been narrated are to be styled fracture of the base, then the experience of past ages must be thrown aside and this injury be considered a light one, instead of one almost invariably fatal.

In looking over the records of St. Michael's Hospital I have found thirty cases of simple, uncomplicated fracture of the base, of which twenty-one died, one was not improved, and seven were cured. Omitting the "not improved case," which I consider must have been intended for "remaining," this gives a mortality of seventy-six per cent., certainly not a high rate for one of the most dangerous injuries in all surgery, and the inference is inevitable that some of these cases were not fractures at all.

Nancrede, in The Medical News of January 28, 1888, quotes Wagner, who claims that all his cases of fractured base who survived the first twenty-four or forty-eight hours, being twenty-three in number, recovered, and apparently ascribes his success almost wholly to the attention given to antiseptic details. Bearing in mind the promptitude with which patients with basal fracture usually die, Wagner's report might almost as well read that those cases which survived recovered, and one feels strongly inclined to doubt the accuracy of the diagnosis.

If the hemorrhage in our case was not due to a fractured base and lacerated sinus, whence did it come?

It will be recollected that a heavy beam fell after the man, striking him on the lower jaw and breaking off part of the alveolar process of one side, also that on the anterior and superior aspect of the external canal was a red and swollen spot, and it seems not improbable that the articular process of the maxilla had been forcibly driven back against its socket, and perhaps fractured the wall of the external canal.

That this explanation is not unreasonable several reported cases, proved by autopsy, demonstrate. Hewitt reports one case in Holmes's *Surgery*, and other authors give this as a not unusual cause of aural hemorrhage. The cases of Spear and Hulke are also similar. It is true that the bleeding was from both ears, and it is hardly probable that both temporal bones were fractured in this manner, yet even this supposition is not more unlikely than a fractured base when the necessarily great extent of the basal fracture is considered.

The bleeding from the nose and under the conjunctiva would indicate a fracture in the anterior fossa; the bleeding from the ears points to a fracture in the middle fossa and on both sides. Here then we have a fracture that involves the petrous portions of both temporal bones, and as fractures on the opposite sides would probably coalesce, the lines of separation would evidently course through the sphenoid and join at, or in, the substance of the ethmoid. It is hardly probable that so extensive a fracture as this would have caused so few symptoms, or would have allowed the patient to leave his bed on the third day, convalescent.

The following conclusions seem fairly deducible from the foregoing consideration:

1. That hemorrhage from the ear is, in itself, no evidence of fracture of the base.

2. That hemorrhage from the ear, even in conjunction with other symptoms, must only be regarded as presumptive evidence.

3. That no such diagnosis should be made until the membrana tympani had been examined.

4. That the membrana tympani being unbroken, the bleeding is not due to a fractured base.

5. That all the signs of fractured base may be present with mere concussion of the brain, and that therefore the two injuries cannot always be differentiated.

6. That many cases, now on record of recovery after fracture of the base, were cases of concussion only.

A CASE OF NEPHRO-LITHOTOMY; RECOVERY.

By L. D. WILSON, M.D.,
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In the *Lancet* of June 16 and 23, 1888, Mr. Henry Morris, Surgeon to Middlesex Hospital, London, in a communication "On the Surgical Treatment of Renal Calculus," reports four successful cases of nephro-lithotomy. In the general remarks upon the subject, preliminary to the detailed reports of these cases, he uses the following language:

"But though the surgical treatment of renal calculus has yielded gratifying and admirable results, and has received the approbation alike of the medical and surgical mind, it still requires to be better known before it will obtain the thorough confidence and general recognition of the profession at large. It is, of course, much to be wished that we could approach every operation for renal calculus with the same certainty that we shall be able to find and remove the stone as we feel when we operate for vesical calculus. . . . As a step toward attaining to such accuracy of diagnosis and precision of ex-

ploratory methods as this implies, it is desirable that every case should be recorded, (1) in which a renal calculus has been removed, and (2) in which a calculus having been justly suspected has been searched for, but in which subsequently it has been proved that the symptoms were due to some other cause."

It so happened that four days previous to the publication of this report I had operated on a case of renal calculus, and in compliance with the desire above expressed, a report of it is contributed.

Case.—On May 31, 1888, I saw J. A. H. P., photographer, of this city, in consultation with Drs. W. S. Fisher and John Cook, of Bridgeport, Ohio. The patient gave the following history: Age thirty-eight, married, of healthy family. Fourteen years before, while working very hard at his business, he began to pass a considerable amount of blood with the urine. This he continued to do intermittently for about six months, when it ceased, as he supposed as a result of medical treatment, and did not recur again so far as he knew at any subsequent period. About eight years later he noticed that pus began to show itself in the urine, and at the time I saw him he was, and had been for several years passing it in relatively large quantities, the proportion to the whole bulk of urine ranging from one-tenth to one-fifth. Its presence however was not constant; there being intervals as much as a month at a time when the urine was apparently normal. About three years ago he began to suffer pain in the right lumbar region, dull, deep-seated and often excruciating in character, and never entirely absent. He was subject to frequent hepatic disturbances, at which times his distress was greatly aggravated. His appetite and digestion continued good, and his bodily functions with the occasional exceptions already noted were fairly performed. During all these years he continued with only occasional intermissions to conduct his business actively, and he had taken to his bed but a few days before I saw him.

At my visit I found him considerably prostrated, countenance indicative of much suffering, daily fever and sweating, poor appetite, marked degree of emaciation, and much mental despondence. There was marked tenderness on pressure in the right lumbar region over the location of the kidney, but no redness, œdema, or fulness was noticeable. Examination of the abdominal region disclosed a rounded tumor located a little above and to the right of the umbilicus, and reaching nearly to the border of the ribs. It was smooth, tense, elastic, and tender, but gave rise to no pressure symptoms, no distinct evidence of fluctuation, but slight appearance of fulness to the abdomen and was only demonstrable on moderately firm palpation. The patient himself was not aware of its existence until it was discovered by his physician. It was flat on percussion and a narrow space of tympanitic resonance seemed to separate it from the liver. An examination of the urine showed pus to about one-tenth of the whole quantity, earthy phosphates, epithelium, occasional blood-disks and albumin in small amount. Its reaction was neutral or faintly alkaline. Sp. gr. about 1020, and normal in quantity. The diagnosis of his physician, Dr. Fisher, pyonephrosis consequent on the presence of a renal calculus, was concurred in.

Owing to the unfavorable condition of the patient, an operation was not at once proposed, it being thought best to see if it were not possible to bring about some improvement before radical measures should be undertaken. This plan was followed for a short period, he in the meantime being seen by several other physicians. Instead of improving he steadily lost ground, and as further delay offered no encouragement, operative measures were proposed and agreed to.

The operation was done June 12 at 4 P.M., Drs. W. J. Bates, R. M. Baird, Stifel, and Hoge, of this city, and Drs. Fisher, Cook, and Heinlein, of Bridgeport, Ohio, present and assisting. Chloroform was administered by Dr. Baird. The ordinary lumbar incision was made, parallel to and about an inch below the twelfth rib, and about four inches in length. The muscular structures having been divided and the perinephritic connective tissue cleared away, the thickened and greatly dilated capsule of the kidney presented. This was opened and immediately a large quantity of offensive pus poured out. On introducing a finger a large rough calculus could be felt firmly embedded in what seemed to be the dilated opening of the ureter. In attempting to remove it quite a number of fragments were broken away by the forceps before the main portion could be removed from its bed. It was finally extracted and the cavity carefully explored. The pelvis, infundibula, and calices were much dilated, but the lining was smooth. After carefully washing out the cavity, first with warm, afterward with warm carbolized water, the anterior half of the wound was closed with silk sutures, a large drainage tube inserted into the cavity, the whole dressed with absorbent cotton and the patient placed in bed.

The main portion of the stone, which measured one and a half inches in length and two and a half inches in circumference, after drying for more than two months after removal, weighed 131 grains, the fragments broken away during extraction, 37 grains; total weight, 168 grains. It was phosphatic in character, and its outer layers very friable.

Nothing of special interest occurred during the various steps of the operation. The anæsthetic was well borne. Hemorrhage, while sometimes quite free, especially during the efforts to loosen the stone from its position, gave but little trouble, one or two small vessels being twisted, pressure with sponges doing the rest. The patient was greatly prostrated and rallied slowly. The next morning, however, he had fully reacted, and his subsequent progress to recovery was uneventful. The temperature varied but a trifle from the normal; the wound drained well; the portion closed by stitches united by first intention, the dressing used being absorbent cotton to the wound, and a large compress on the abdomen over the site of tumor felt before the operation and which, of course, disappeared when the pus cavity was emptied. The drainage tube was retained seventeen days, when the discharge having become small in amount and plainly urinous in character, and the cavity satisfactorily contracted, it was withdrawn.

On the thirtieth day after the operation the patient went out driving. A few weeks later he took a trip to the lakes, and returned in September, having gained about forty pounds in weight. Since then he has actively followed his business. A small fistula remained discharging slightly until a few weeks ago, but it seems now to be permanently closed.[1]

The principal requisite to success in operations of this sort would seem to lie in integrity of the other kidney. In the *Pittsburg Medical Review* for September, 1888, is the report of a case operated on by Dr. McCann, of that city, in which the left kidney was removed by lumbar incision for multiple abscess and calculi, on July 31, of this year, the patient dying five hours afterward. The autopsy disclosed a similar condition of the other kidney. While the determination of this question even approximately, in many, if not in most cases will be beset with difficulties and involved in more or less doubt, still, in general, where the daily quantity of urine secreted, and the specific gravity do not fall much below the normal; where the amount of albumin present is not greater than the contained pus would account for; if no casts are found and no subjective or objective signs of mischief are elicited by inquiry or examination, it may be fairly assumed that the opposite kidney is at least in a sufficiently active condition to warrant an operation.

This one question out of the way, the indications and contra-indications that may exist in the other organs, and in the general state and surroundings of the patient are comparatively easy to determine.

WHEELING, November 2, 1888.

RADICAL TREATMENT OF SUPPURATING INGUINAL GLANDS.

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IT IS my object in this paper to report a typical instance of each of the two forms of suppuration to which the inguinal glands are commonly liable, and to sketch briefly the technique of radical operation thereupon.

These chosen illustrative cases will be found to present almost all of the coincident conditions which are usually found accompanying or complicating buboes thus situated.

The first case is that of Charles A., aged twenty-five, rather robust in appearance, but strumous withal. He had always enjoyed good health, but on coming under my care was somewhat depressed in constitutional vigor. Examination proved negative, except in the left inguinal region where was found a chain of large lymphatics: one of them quite softened, and all painful to touch or upon motion. No history or likelihood of infection could be elicited. He was urged to have a radical operation performed and thus secure permanent relief from all annoyance or danger from this source in the future. Consent thereto having been obtained after a just presentation of all the prognostic aspects of his case, I made a two inch vertical incision one-half inch to the outside of the central and most softened gland, and then worked my way laterally through the swollen and softened tissues until the purulent gland was reached, when, after easily tearing its capsule with the finger-nail, it was enucleated without rupture by gently shelling it from its bed with the tip of the index finger. In like manner, save that the thumb was also at times employed, every gland of the chain was removed. A thorough curetting of the gland-beds and surrounding tissues was then done, the wound washed with 1 to 1000 sublimate solution; catgut sutures were made to bring the edges of the entire opening into close contact, and an antiseptic dressing was applied. No drainage was employed. The primary dressing was not disturbed for ten days, when a firm and complete union of the entire wound was found to have occurred.

The second case is that of William N., who about six months before coming under my care suffered with a soft chancre of the glans penis, the scar of which was quite marked. The usual suppurating bubo ensued and was opened. The abscess then closed, but only again to require opening of another purulent collection shortly afterward. These abscesses had arisen and been operated upon several times, and he had passed through the hands of a number of physicians when I first saw him. This was about a week after the last abscess had been opened, and there then existed a small sinus; also a gland higher in the chain was just taking on suppurative action. Explaining to him the cause of his constantly recurring troubles, and the likelihood of their keeping up indefinitely unless the whole chain of diseased glands was excised, he readily consented to the operation.

An oval vertical incision two inches in length was made over the centre of Poupart's ligament, including the fistula, and avoiding by half an inch the degenerated gland above referred to. Through this opening every gland of the chain was removed in the same manner as in Case I., except that in this instance the most pussy gland ruptured during extrication, so it was removed, together with the remains of the one to which the sinus led, by means of the curette. As this case presented considerable swelling and infiltration of the surrounding tissue, a small catgut drain was left in. The wound was not dressed for a week, when it was found united, except that portion which the drain had traversed, where some gaping had taken place, but which was granulating nicely. A lymph-like discharge kept up for a few days longer, but then the wound firmly and permanently closed.

[1] A few days after this was written the patient was rather suddenly attacked with severe pain in the lumbar region accompanied with high fever, headache, etc. This continued several days when the fistula reopened and discharged quite freely. The symptoms at once subsided, the fistula remaining and discharging slightly, as it had done before.

The specimens secured from these cases proved, as usual, most interesting and significant in their teachings and indications. The glands had no communication with each other, in fact, when in situ were separated by morbidly thickened interstitial tissues, and hence would probably have suppurated each in turn and never have fused into one large abscess. Indeed, the history of Case II. shows what in time probably would have been the subsequent course of Case I. Several of the more superficial of the in all about eighteen glands removed from both cases, were quite broken down and not much more than pus bags, whilst *all* of those not, apparently, much more than hardened upon palpation when split open, were found to contain innumerable vari-sized foci of suppuration or minute abscess.

I would urge similar treatment for all cases of suppurative, tubercular, or specific infections of the inguinal glands. The chief points to be kept in mind are: vertical incision down to the gland capsules, if they still remain, avoiding; if possible, those most degenerated; to enucleate the latter from one or the other side; to remove every gland of the chain or neighborhood, whether enlarged or not, with the fingers alone, if they be unruptured, or with the curette, if that accident has occurred before or during the operation; and, finally, never to be content to open abscesses of the above septic, specific, or tubercular nature, without at the same time removing all the glands which are their present cause, or they may prove future sources of recurrence or constitutional infection.

NOTE ON THE COUNTING OF WHITE BLOOD-CELLS.

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STICKER (*Zeitschr. f. klin. Med.*, Bd. xiv. S. 91 ff., 1888) states that when the blood is diluted—*e. g.*, with sodium sulphate solution, and mixed by shaking in the mélangeur of Malassez, or similar instrument—the number of white blood-corpuscles is found to be smaller in comparison with the red than when a thin layer of pure blood is examined. He infers that a considerable number of white corpuscles have been destroyed by the mixing and shaking, and he concludes that the true number can only be found by the examination of the thin layer of undiluted blood.

The statement of Sticker will probably seem to be true to one who compares the two methods of examination experimentally. But there is some reason to question its correctness. The following observation is submitted:

Some leukæmic blood was drawn into the mixer, diluted with five per cent. of sodium sulphate solution, and shaken. One drop was then examined. Next the remaining blood was shaken more vigorously than before, and another drop was examined; again the blood was shaken up in the mélangeur and a third drop examined. An examination in this form was made on four occasions. The results were as follows:

	Drop No. 1. White-red.	Drop No. 2. White-red.	Drop No. 3. White-red.
First examination	1 to 14.3	1 to 17.8	1 to 14.4
Second examination	1 to 10 8	1 to 12.6	1 to 16.3
Third examination	1 to 12 5	1 to 11.3	1 to 9 7
Fourth examination	1 to 16 5	1 to 15.0	1 to 12.4
Average . .	1 to 13.5	1 to 14.2	1 to 13.2

The second and third shakings did not affect the ratio, and consequently did not destroy any white blood-corpuscles. But these shakings were decidedly more violent than that preceding the counting of drops No. 1; therefore, either the white blood-corpuscles are of two kinds—one very tough and the other very tender—or the counting of pure blood in a thin layer is liable to errors favoring an excessive count of the white corpuscles. When a thin layer of blood is spread on a slide and covered, we ordinarily find places where the red corpuscles are much crowded and run together in rouleaux and other places where they are separate and easily to be counted. Were the white corpuscles pretty evenly distributed over the preparation, while the red showed this tendency to concentration at points, and were we, in counting, to avoid the more crowded localities, where counting is difficult or impossible, we should obtain a number for the white blood-corpuscles in excess of what it should be.

MEDICAL PROGRESS.

The Radical Cure of Hernia.—MR. MITCHELL BANKS, at a late meeting of the Harveian Society of London, read a paper in which he divided non-strangulated hernia into two groups: (1) moderate sized herniæ, and (2) very large and enormous herniæ. This had been done, because they were by no means on the same footing, either as to danger to life from the operation or liability to recurrence of the rupture. In the statistics which he gave, the terms were used in the following manner: By "quite sound" was meant that the rupture had never come down since the operation, that there was nothing in the way of a swelling to be felt or seen, and that there was no impulse on coughing. By "partial success" was meant that the rupture had slightly returned, or threatened to return if unsupported, but that, with the aid of a truss, the patient was in safety and comfort. In many of these cases no truss at all would keep the bowel up before operation, while after it support could be effectually given. In every instance the patients placed in this category declared that they were in a distinctly better position after the operation than before it. By "complete failure" was meant that the rupture was as big and troublesome as before the operation.

Among the fifty-five moderate-sized non-strangulated

herniæ, two deaths were recorded. One was distinctly due to the operation. The other was doubtful, as the wound was all but healed, and there was no peritonitis or other lesion relating to the wound found after death. Of the sixteen very large and enormous herniæ, four cases proved fatal. Septicæmia killed two patients, and an unsuspected abscess, bursting into the peritoneal cavity after the patient was walking about and deemed sound, proved fatal in another, while in one case the operation could not be completed.

Of the twenty-two cases of strangulated inguinal hernia, one, an old man, aged seventy-seven, died from septicæmia and bronchitis.

Of the nineteen cases of strangulated femoral hernia, two died; one never recovered from the collapsed state in which she arrived at the infirmary, and another was moribund when admitted.

The statistics of permanence of cure showed that of the 100 cases of moderate-sized non-strangulated and strangulated herniæ combined, it had been possible to trace for very considerable periods seventy-seven. Of these, forty-eight remained quite sound, seventeen were partial successes, and twelve were complete failures. Of the sixteen cases of very large and enormous herniæ, it had been possible to follow up ten. Of these, five remained practically sound (though all required some support to prevent return), three were partial successes, and two were complete failures.

MR. BRYANT'S experience of those cases in which the sac was removed was that they succeeded best. After kelotomy the operation could not be considered completed until the sac had been removed. Operations on children were to be avoided, except where a truss could not be worn. Opening the sac almost quadrupled the risk. In adult life operation was inadvisable when a truss could be worn; big herniæ ought to be left alone. He had occasionally been obliged to operate upon them, but a truss must be worn afterward.

MR. EDMUND OWEN was unable to speak definitely of results; he could only say that he was satisfied with the result of his operations up to the present. He had operated upon a good many children, but he entirely agreed with Mr. Banks, that children should not be operated on unless the hernia was absolutely beyond the control of a truss, for it was an undisputed fact that, with a fair chance, children did "grow out of" their inguinal weakness. The cases which he preferred for operation were those of adults whose inguinal herniæ were associated with an atrophied or an undescended testis. In such cases the surgeon should remove the useless gland without compunction, and, having ligated and pushed up the cord, should completely occlude with sutures the inguinal canal. The objection against removal of the undeveloped testis was purely sentimental, for the gland was almost certainly of no physiological value. He did not believe in the surgeon being able to recognize during the operation the "internal abdominal ring" and the "conjoined tendon;" at any rate, though he knew them in the dissecting room, he ignored them in the hospital. He thought that it mattered little with respect to the permanency of cure whether the surgeon used silver, gut, or silk for closing the canal; but he would ask Mr. Banks how he dealt with the sac of that variety of hernia which descended into the tunica vaginalis. He (Mr. Owen) was satisfied to tie the funicular process high up, flush with the peritoneal wall, so as to leave no depression to invite the subsequent descent of the bowel; he then divided the process below the ligature, and removed an inch or so of the testicular part of it. He did not believe in the desirability of fashioning and suturing an artificial tunica vaginalis; all that might be left to Nature. The point on which he specially desired to join issue with the author of the paper was as regards the subsequent wearing of a truss. If the neck of the sac was obliterated, and the inguinal canal thoroughly closed, no bowel could descend, and the truss, therefore, was unnecessary. He always forbade the use of a truss after the operation, for he had a strong opinion that the constant pressure of the pad went a long way toward promoting the absorption of the plastic material which was thrown out in the neighborhood of the ligatures and sutures, and the definite organization of which had a considerable influence in establishing the permanency of the cure.

Mr. Banks said that removal of the sac was best because of its simplicity. He was himself inclined to operate upon those who could wear a truss, but in any case removal of the sac was essential, and repaired the irregularity of the peritoneum. He practised stitching of the rings, but it was of less importance. Umbilical herniæ contained so much adherent omentum and bowel that they were seldom suitable for operation.—*British Medical Journal*, December 1, 1888.

Lithium and Arsenic in Diabetes.—DR. VIGIER recommends the following formula for the treatment of diabetes:

℞.—Carbonate of lithium . . . 1½ grs.
Arseniate of sodium . . . $\frac{1}{20}$ gr.

For one pill. Take two a day.

DR. CONSTANTINE PAUL proposes the following:

Effervescing carbonate of lithium one dose, adding a few drops of Fowler's solution.

DR. DUJARDIN-BEAUMETZ prescribes as follows:

To a glass of carbonic water add 7½ grains of the carbonate of lithium and two minims of Fowler's solution. —*Revue de Thérapeutique*, Nov. 15, 1888.

Glycerin Suppositories.—The glycerin suppositories recommended by Dr. Boas in the *Wochenschrift* of the 23d inst., have given rise to the manufacturing of like suppositories said to be as good, if not better. As Dr. Boas now states in the *Pharm. Zeitung*, 1888, No. 80, he has been disappointed with the action of the glycerin-gelatine suppositories manufactured by Heck, as well as in the glycerin-soap suppositories manufactured by Dietrich, of Helfenberg.

Because of the too great solvency of the material employed and the great diffusion of glycerin upon the intestinal mucous membrane, Dr. Boas gives preference to the suppositories made from cocoa-butter by Sauter, of Geneva.

Dr. Boas does not consider glycerin a reliable and active aperient, and thinks that only when atony of the lower colon exists are its beneficial effects noticeable.—*Deutsche med. Wochenschrift*, Nov. 29, 1888.

Naphthol in Typhoid Fever.—At a meeting of the Bristol Medico-Chirurgical Society, DR. J. MITCHELL CLARKE

read a paper on the effects of naphthol in typhoid fever. He considered that the so-called bacillus typhosus was probably the cause of the disease, and therefore that the rational treatment was to prevent the growth and development of this germ by introducing some insoluble, and therefore non-absorbable, antiseptic into the alimentary canal, according to the suggestion of Bouchard. Naphthol β fulfilled these conditions, and appeared to have shortened the duration of the fever, prevented splenic enlargement, albuminuria, and other complications, and brought about more satisfactory convalescence. The risk of propagation was also diminished by destroying the infectious nature of the stools. In some cases naphthol β caused gastric disturbance.

Hair Tonic.—

Phenic acid		ʒss.
Tr. nuc. vomica		ʒij.
Tr. red cinchona		ʒj.
Tr. cantharides		ʒss.
Cologne water Cocoanut oil	āā q. s. to make	ʒiij.

Sig. Apply to the hair daily by means of a wet sponge.—*Les nouveaux remèdes*, November 24, 1888.

For Vomiting of Pregnancy.—Very good results have been obtained from ʒss to ʒj doses of fluid extract viburnum prunifolium. It has been tried in Bellevue and other city hospitals. In a series of eight cases, in which it was recently given in ʒj doses, a uniformly successful result was obtained. It seems to have a direct action on the uterus itself, thus preventing the reflex irritation which results in vomiting. In some of the hospitals all other remedies have been discarded.—*Canada Lancet.*

To overcome Pain along the Course of the Trigeminus.—Of the few remedies which act upon a single nerve trunk, butyl-chloral-hydrate is an example. Given internally in doses of fifteen to thirty or forty-five grains, it produces anæsthesia along the course of the trigeminus; this anæsthetic effect though is only a temporary one; large doses produce sleep.

Butyl-chloral-hydrate will be found of special use in affections of the trigeminus in which the pain is not due to a chronic condition, such as facial rheumatism, or toothache due to an inflamed pulp or to periostitis. In the filling of teeth, which appear somewhat painful, butyl-chloral-hydrate acts very effectively.

To disguise the unpleasant taste and to aid the solvency of this drug the following combination has been found useful:

℞.—Butyl-chloral-hydrate	2–3–5	parts.
Alcohol	10	"
Glycerin	20	"
Distilled water	120	" —M.

Sig. Three or four tablespoonfuls at one dose.

Size of the dose to be regulated according to the intensity of the pain and the individuality of the patient.—*Therapeutische Monatshefte*, November, 1888.

A Penetrating Wound of the Abdomen with Protrusion of the Bowel, in a six months' Pregnant Woman, caused by the Horns of an Ox.—DR. MARTIN AYUSO records in the *Clinica Navarra* the case of a woman, aged twenty-six, who was gored by an ox. As soon as able she arose from the ground and went into the house holding in both hands her protruding intestine. Drs. Cabezudo and Ayuso found her lying in bed on her right side, with her clothing on, legs flexed upon the abdomen, vomiting, and complaining of severe abdominal pain.

The wound was situated in the right iliac region, about one-sixth of an inch below the Fallopian tubes; it was a little over an inch in length, and shaped like a buttonhole, through which protruded the intestines, forming a mass as large as the head of an adult.

After having washed the wound with a five per cent. solution of phenic acid, they increased the length of the protruding intestine in order to facilitate the reduction of the hernial mass, but this proved impossible, since the continued vomiting of the patient would not allow the mass to remain in position. The patient was then put under the influence of chloroform, the intestinal mass reduced, and the operation, which had already lasted four hours, was completed. Convalescence was slow and tedious, and not without numerous minor drawbacks, but the fœtus, which was then six months old, was carried to full term.—*Gazette hebdomadaire*, November 24, 1888.

Ingrowing Nails.—DR. PATIN recommends a long-continued foot-bath, after which the nail must be carefully wiped dry. Then paint with traumaticin between the nail and the granulations for several days. The chloroform penetrates into the flesh, and, after evaporation, leaves a thin layer of gutta percha, which gradually separates the nail from the granulations, and protects the latter against external influences. Complete this protection with sticking-plaster, which must be removed only for the purpose of another painting. When the nail which must be left untouched for some time, has sufficiently grown out, its prominent portion must be cut off, the corners being rounded off. Healing will be all the safer if the patient abstains as much as possible from walking and wears very easy shoes.—*London Medical Recorder*, November 20, 1888.

Treatment of Nasal Diphtheria.—DR. KEIERSEN, in the *Nordiskt Med. Arkiv*, Bd. xix., writes that having found it very difficult to inject disinfecting fluids in the nasal passages of both children and adults, he has composed a suppository made of boric acid and cocaine. These are inserted deeply into the nasal passages, until they reach the posterior nares, through which they are made to protrude. Their action is twofold: first, they exert mechanical pressure, and secondly they act as a disinfectant, through the boric acid, which also, in dissolving, trickles down to the stomach, where it is further able to continue its disinfecting properties upon membranes which might possibly have been swallowed.—*Deutsche med. Wochenschrift*, October 25, 1888.

Diet in Bright's Disease.—The *Revue gén. de clinique et de thérap.* of October 18, 1888, gives under the above title the following:

1. *Classical diet. a.* First of all, avoid damp weather, and all sudden changes of temperature. *b.* Avoid spiced and heatening dishes, no eggs, no wines, no liquors, no beer.

2. *Diet of Dr. Sénator.* Patient may partake of all white meats, also pork; must abstain from raw meats, and confine himself as much as possible to a vegetable diet, especially of fruits, salads, and milk. For beverage —wine largely diluted with water.

3. *Diet of Dr. Semmola.* Consists in observing the foregoing rules, and of mixing with all beverages taken during twenty-four hours the following solution:

R.—Iodide of potassium . . grs. xv.
Phosphate of sodium . . grs. xxx.
Chloride of sodium . . grs. lxxv–xc.
Water . . . . . pint ij ℥iij.—M.
Take as directed.

4. *Diet of Dr. Bamberger.* Consists in enriching the milk diet, through the use of tonics and mixtures containing iron. He recommends the following prescriptions:

a. Pills of perchloride of iron. Of these pills, from 3 to 6 are taken in two or three divided doses daily. *Each* pill contains:

R.—Perchloride of iron . . . . ½ grain.
Powd. menyanthes . . . . 1/12 "
Extract of taraxacum, . . . q.s.—M.
Make one pill.

b. Pills of sulphate of iron. Dr. Bamberger takes his formula from Dr. Wiethe:

R.—Sulphate of iron . . . . 75 grs.
Bicarbonate of soda . . . 75 "
Extract of dandelion . . . q.s.—M.
Ft. 60 pills. Take 3 morning and evening.

c. Infusion of Peruvian bark.—This infusion is made as follows: take 5 drachms of the gray Peruvian bark (crushed) and adding it to two pints of water, allow it to boil for thirty minutes, then sweeten with 5 drachms of syrup of orange-peel; thus the prescription would read:

R.—Gray Peruvian bark . . . ℥v.
Water . . . . . ℥vjss.
Syrup of orange-peel . . . ℥v.—M.
Make infusion.

Dose ℥ij every two hours.

Treatment of Mania with Opium.—Prof. Jolly has tried the effects of opium in the treatment of mania, and especially in chronic mania, as recommended by Dr. Nasse, with most favorable results. He found that opium acted most satisfactorily during the period in which the patient assumes a condition of mental indifference.

As a rule, Jolly used the simple tincture of opium, which was given in increasing doses, from ten drops to fifty drops, three times daily. Only when exceptionally large doses were given did he observe unfavorable symptoms (such as digestive disturbances, vomiting, severe drowsiness, and only once interruption of pulse).

In ten cases (two-thirds), he noticed an improvement in the motor symptoms, the patients became quieter and slept sounder. So soon as the remedy was intermitted, the patient would relapse to his former condition, and improve again when the administration of opium was resumed. Of fifteen cases, five recovered entirely. Nasse also states that one-third of his cases recovered.

As to the theoretic action of opium, Jolly is of the opinion that it acts directly upon the cerebrum.—*Münchener med. Wochenschrift*, November 6, 1888.

Remedy for Toothache.—

R.—Acetate of morphia . . . ¾ grs.
Essence of peppermint . . 4 drops.
Phenic acid (pure) . . . 20 "
Collodion q.s. to make . . 1 drachm.

Apply with cotton.—*Journal de Médecine de Paris*, October 28, 1888.

Saccharin as an Antiseptic in Ophthalmology.—At a meeting of the Société de Therapeutique de Paris, October 24, Dr. Constantin Paul read a paper upon the experiments made by Dr. Trousseau to decide the utility of saccharin as an antiseptic in ophthalmology. After having convinced himself of the absolute harmlessness of this preparation in its action upon the cornea of rabbits and dogs, he tried the same in solutions of 1 : 500 and 1 : 250 upon thirty patients. From the results obtained, he concludes that daily applications of, and washings with saccharin solutions, can be undertaken without any harmful reaction. Enucleations, three iridectomies, eight extractions for cataract, and different operations upon the eyelids healed without any reaction setting in. It was found of special use in catarrhal conjunctivitis.—*Wiener med. Presse*, No. 47.

Therapeutic Treatment of Measles.—Dr. A. Montrefresco (*Arch. de Path. infant.*) gives the following results of his observations made during an epidemic of measles at Naples:

He is opposed to the use of antipyretics, as in most cases they prove to be of no avail. Antipyretics should, in his opinion, be reserved for such conditions only in which the high temperature threatens to lead to a degeneration of tissue, to a myocarditis, or to brain trouble.

With him the importance of diet is considerable. Above all, he recommends glycerine, which he prefers to alcohol, and, which, he thinks, is better able to sustain the strength of the patient, which it does by diminishing the amount of urea eliminated, and by lowering the temperature. He prescribes it in the form of a lemonade in daily doses of ½ to 1 ounce.

For broncho-pneumonia, the commonest and at the same time gravest complication, he prescribes infusions of ipecac. To diminish the cough, tincture of aconite is added to this powerful expectorant. In the capillary bronchitis of measles he administers iodide of sodium, which, combined with the bromide of the same base, regulates the rhythm of respiration, and diminishes the frequency of the cough.—*L'Abeille Médicale*, November 26, 1888.

Treatment of Oxaluria.—In a communication to the Society of Practical Medicine, D. H. Picard states that to combat the formation of lime oxalates and to prevent consequently the waste of lime salts, and the formation of urinary calculi, one must, above all, avoid those foods which constitute the formation of oxalates, such as watercresses, tomatoes, rhubarb, and fruits rich in citric, tartaric, and malic acids, especially apples and currants. Entire abstinence from champagne, Moselle wine, and strong

beers must be enforced, but in their stead cognac, whiskey, and gin may be permitted. Hard waters, if unavoidable, should be boiled before drinking.

The medicinal treatment consists in the administration of potassium, sodium, alkaline phosphates, and food rich in phosphates, such as fish roe, calf and mutton brains. If there exist any acidity of the alimentary canal, carbonate of magnesium should be prescribed.

When this last mentioned condition exists very strongly, acetate of potash, hydrochloric acid, twenty drops, three times daily, or a mixture of hydrochloric and nitric acids is indicated.

℞.—Acid hydrochloric,
Acid nitric . . . . . āā ʒiv.
Water . . . . . ʒjss.
Orange syrup . . . . ʒiv.—M.

One teaspoonful in a glass of water before each meal.

Active exercise in the open air, salt baths, sea voyages; freely partaking of warm aromatic beverages, infusions of calumba and of hops, large quantities of milk, avoidance of sugar and early retiring and rising, will be followed by good results.—*Revue de Thérapeutique*, Nov. 15, 1888.

Vaso-motor Rhinitis.—At the meeting of the International Otological Society, held at Brussels, DR. CARLO SECCHI, of Bologna, read a paper upon this subject, the conclusions of which are as follows:

1st. Simple hypertrophic rhinitis may be due to some intestinal derangement, getting better or worse according to the abdominal condition.

2d. The nasal obstruction manifests itself when the patient retires for the night; he is troubled with nightmare, and spasmodic twitching; he sleeps with his mouth wide open; and in the morning finds his tongue dry and covered with sordes.

3d. This nasal obstruction interferes with the faculty of hearing.

4th. This nocturnal obstruction can produce lesions in the naso-pharyngeal cavity of children, such as pharyngeal hypertrophy.

5th. In chronic otitis there is generally a nasal obstruction of this form.

6th. The intestinal treatment (with purgatives, etc.), has an indirect action upon the hypertrophic rhinitis.—*Archives de Laryngol. et de Rhinologie*, November 15, 1888.

Surgical Treatment of Cicatrices of the Hand.—DR. JUENGST (*Rev. des Sciences Médic.*) has performed autoplastic operations, according to the Italian method, upon three subjects aged respectively two, fourteen, and seventeen years, who were suffering from ugly cicatrices of the palm of the hand, with contraction of the fingers, due to burns.

He made one large incision into the skin, and divided the cicatricial tissue at several points, thus enabling the patients to extend their fingers. Then he took from the opposite lateral portion of the thorax a piece of skin, the dimensions of which surpassed by one-eighth of an inch the destroyed tissue of the hand; this was sewed to the hand with sutures of catgut.

The hand was then tied to the thorax, to prevent all motion for sixteen days. When the bandages were removed, the results were satisfactory.—*Revue de Thérapeutique*, December 1, 1888.

Treatment of Migraine.—DR. JAMES LITTLE highly praises the combination of salicylate of sodium and effervescent citrate of caffeine, which he has used with success in the treatment of migraine. His practice is as follows: Should the patient awake with the sensation of approaching headache, he orders him to take thirty grains of salicylate of sodium in a glass of water, which has been rendered effervescent by the addition of a dessertspoonful of granulated citrate of caffeine. If necessary, a second and third dose can be taken every second hour. The addition of the effervescent caffeine gives this mixture an agreeable taste, which would not be the case if the salicylate were taken by itself. One must not attribute the good effects obtained to the caffeine, as alone, it is ineffective, while a combined action of these drugs is immediately followed by good results.—*Journal de Méd. de Paris*, Nov. 18, 1888.

Antineuralgic Drops.—
℞.—Tincture of valerian
Elixir of paregoric
Cherry-laurel water } . . āā ʒijss.
Tincture of hemlock . . ʒjss.—M.

Take seven drops in a little water as soon as pain in stomach is felt.—*L'Union Médicale*, Nov. 18, 1888.

Erysipelas of the Nasal Passages.—At the late meeting of the International Otological Society held at Brussels, DR. SCHIFFERS of Liege, stated that he had seen two cases of this affection. The first following close upon an erysipelas of the face, brought on a rhinitis which terminated in perforation of the septum; the second case was preceded by an erysipelas of the scalp. The author remarks that erysipelas can also find its origin in the nasal passages. His treatment consists in washing the cavities with sublimate solutions of 2 : 1000 or 4 : 1000; and in tamponing the posterior nares.—*Archives de Laryngol. et Rhinologie*, November 15, 1888.

Saccharin as an Antiseptic.—DR. C. PAUL, *Courier Médical*, in his researches into the antifermentative properties of saccharin, has tried to fix the minimum dose required to prevent the development of certain microbes, with the following results: A ^{1} watery solution arrests the development of the bacterium termo; a solution of $\frac{1}{700}$ kills the staphylococcus pyogenes aureus. Applying these researches to the antiseptic therapeutics of the digestive tract, he prescribes the following in teaspoonful doses in a glass of water:

℞.—Saccharin . . . . . ʒjss.
Bicarbonate of soda . . . ʒj.
Alcohol . . . . . ʒjv.
Essence of mint . . . . gtt. xx.—M.

Gazette Médicale de Montréal, November, 1888.

Treatment of Warts.—Children often suffer from unsightly warts of the hands, which cannot be removed by caustic. DR. G. B. PULLIN, of Sidmouth, recommends in such cases the administration of two or three minims of liq. arsenicalis twice a day. In a week or ten days the warts will disappear.—*British Medical Journal.*

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, DECEMBER 22, 1888.

COMPLETE VERSUS PARTIAL HYSTERECTOMY FOR CANCER OF THE UTERUS.

IN April of last year we made extensive editorial comment upon total hysterectomy for cancer, based upon a paper by Fritsch, which had just appeared in the *Archiv für Gynäkologie*, Bd. xxix. Heft. 3, which set forth that he had then performed the operation 60 times, with a mortality of 11.6 per cent., including 2 deaths which could not fairly be attributed to the operation. Of his 53 survivals, 2 remained healthy after 3 years, 7 after 2 years, 8 after 1 year, and 3 after 10 months.

With the knowledge of these statistics, and more especially of those which have since appeared from the pens of Leopold, Martin, and others as successful, we had settled into the firm belief that total hysterectomy should be performed (certainly by those accustomed to similar surgery) in every case of cancer of the uterus, provided that no extension of the disease to the surrounding tissues could be demonstrated. Therefore we are much surprised to notice the direction which recent discussion of this subject has taken in France.

In the *Gazette Hebdom. de Méd. et de Chir.* of October 26, 1888, is contained a communication to the Société de Chirurgie from M. VERNEUIL, strongly urging partial extirpation of the carcinomatous uterus in preference to the radical or total operation, and the two following numbers of the same journal contain lengthy discussions of the paper, in which, to our further surprise, no voice is found to champion the measure which we had regarded as established. Facts thus differing so markedly from prevalent surgical opinion always demand careful scrutiny that no hitherto unknown observations and truths may escape us which might either prove us in the wrong, or, on the other hand, possibly render our tenets even more firm.

After stating that no operation save curetting is permissible, if the malignant process has infected the neighboring tissues, and that this latter cannot always be determined, Verneuil asserts that partial extirpation is one-half as dangerous in its immediate effects as is the radical operation. He reports 22 partial hysterectomies, with an immediate mortality of 4.9 per cent. C. Braun's mortality from the same operation is 6 per cent. To offset this statement we have Leopold's statistics (*Archiv für Gynäkologie*, No. xxx. Heft. 3), wherein he records 48 total hysterectomies—all but 6 for cancer; 38 of the neck and 4 of the body—with a death-rate of 6.2 per cent. from the operation, and others even more favorable if early attempts are excluded. It is more than probable that if statistics of the radical operation were confined to operations performed within the past two years, they would make a very much better showing.

It is next stated by Verneuil that recurrence takes place much more frequently after total hysterectomy than after partial, and figures are brought forward to prove this supposed fact. But what are they? Simply statistics of German operators, which include all of those early operations which were undertaken when the disease had widely spread beyond the borders of the uterus, and such as were never interfered with by the partial method, and so could not vitiate the results of the latter. And it is from these statistics that Verneuil concludes that recurrence is equal after either operation!

Is it possible or reasonable that an operation which simply removes the vaginal portion of the neck of the uterus by the écraseur is more radical and thorough than one which not only removes the whole uterus, but also the surrounding portions of the vaginal mucous membrane and proximal portions of the uterine ligaments and neighboring fasciæ? Certainly not; no more could we say that excision of a carcinomatous nipple would be more effectual than extirpation of the whole breast and the lymphatic contents of the axilla.

In addition to *not* being the most efficient and

relatively safe at our command, other objections to the partial operation are: that hemorrhage cannot in it be so readily controlled; severe atresia is apt to follow; whilst the possibility of subsequent pregnancy exists, which, should it occur, may lead to great and, probably, fatal injury. Again, the total operation probably has very seldom been performed for other than true cancer, whilst the partial, from its ease and supposed safety, has in many cases been performed where the disease was merely "suspicious."

Therefore, we still find no reason materially to change our belief, which remains: that the only thorough operation for uterine cancer is total hysterectomy, which procedure is only to be performed when no invasion of the surrounding tissues has taken place, and when the uterus is freely movable; that it is better to remove not only the uterus, but also its appendages when it is feasible; that partial hysterectomy is usually but a palliative measure, after which recurrence is much more apt to occur than when the radical operation is done, and that its mortality is but slightly below that of the most effectual, hence, safest operation.

Carcinomatous nodules have been found in the body of the uterus when, apparently, the cervix was infected with but the very earliest stages of that disease, so that if there is any radical cure for this terrible affection it would seem to be afforded by the radical operation performed at the very earliest moment possible after the diagnosis has been established.

THE DANGER OF SEPTIC INFECTION FROM NASAL AND AURAL DISCHARGES OF THE OBSTETRICIAN.

The familiar anecdote of the obstetrician who communicated septic infection to his patients from ozæna, with which he suffered, is emphasized by the report of two cases in which the media of infection were aural and nasal discharges in the obstetrician, published in the *Lancet* of November 24th, by Hewetson.

In the first case a neglected otorrhœa with retained pus had impaired the breath of a physician by continued but gradual septic absorption. On inquiry, it was learned that in his obstetric practice, which was extensive, septicæmia occurred frequently, and for which he could not account. Removal of the septic focus and the cure of the otorrhœa were followed by the disappearance of septicæmia among his obstetric patients. The second case was that of an assistant who suffered from syphilitic ulceration of the nares: attending a confinement in his preceptor's absence, the case ended fatally by septicæmia. His condition being recognized, he was immediately excluded from practice.

These instances of the direct consequence of septic matter are, unfortunately, not so rare in surgical practice as to be disbelieved by practical surgeons; and from the time of Semmelweiss the possibility of such an occurrence has been occasionally illustrated in obstetric practice. If demonstrative proof were needed, it has been supplied by Mittmann, who has examined material obtained from beneath the nails of various persons for septic germs. His results, published recently in Virchow's *Archiv*, showed the presence of micrococci in those engaged in occupations which brought them in contact with effete matter, and also in those habitually careless in the toilet.

It is quite possible that sufficient interest in the antiseptic toilet of the surgical or obstetrical case has been excited for the good of the patient; but the attention of physicians and nurses may still be directed to their personal toilet with advantage. A focus of suppuration in doctor or nurse should be promptly destroyed. The ears, nose, throat, and teeth, which readily harbor bacteria, should be maintained in a healthy and, hence, aseptic condition; the hands, as the constant medium of communication between the attendant and patient, require constant scrutiny and care; the hair and beard are troublesome appendages from the aseptic point of view, and require careful attention. Persons suffering from diseases attended by tissue necrosis should be debarred from attendance on the sick. If the physician would enjoy freedom from the responsibility of personally infecting his patients, he must pay the traditional price of liberty—eternal vigilance.

Dr. Joseph Leidy, we are glad to learn, has lately had another added to the many honors he has had conferred upon him. A recent letter from the distinguished French naturalist, Milne Edwards, brings the information that the Cuvier prize of the French Academy of Sciences has been unanimously voted to him. The letter states that the prize has never been conferred except upon the most distinguished scientists, such as Agassiz, Owen, von Baer, and Ehrenburg. The award is, therefore, all the more a great distinction.

Owing to ill-health Dr. Wittelshöfer has resigned the editorship of the *Wiener medicinische Wochenschrift*, and Dr. Adler has been appointed as his successor.

An Army Medical Board will be in session in New York City, N. Y., from May 1 to 31, 1889, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies. Persons desiring to present themselves for examination by the Board should make application for the necessary invitation to the Secretary of War, before April 1, 1889, stating the place of birth, place and State of permanent residence, and enclosing certificates based on personal knowledge from at least two persons of repute, as to American citizenship, character, and moral habits. Testimonials as to professional standing, from professors of the medical college from which the applicant graduated, and of service in hospital from the authorities thereof, are also desirable. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, the evidence of which, his diploma, must be submitted to the Board.

Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

Dr. Landon Carter Gray was elected last week President of the Medical Jurisprudence Society of New York.

According to the *Medical Press* of December 5, 1888, the Censors of the Royal College of Physicians of London have been relieved from a position of much delicacy and anxiety, by the voluntarily tendered resignation of a member whose case has been under their consideration for some time past, and who has been accused of a breach of professional confidence in connection with the medical history of an illustrious patient whose case has excited the interest of two continents.

Sir Spencer Wells has been appointed a Deputy Lieutenant for the new County of London.

The fourth annual meeting of the Association of Ex-Residents of the Pennsylvania Hospital will be held at the Hospital, on Thursday, December 27, 1888, at 8 P.M. After a brief business meeting, there will be a social reception and entertainment, to renew and revive old friendships.

The Philadelphia Polyclinic has established a three months' Special Course in Ophthalmology, including didactic instruction and quizzing, with three hours daily of clinical work. The course will be systematic, aud is a departure from the ordinary six weeks' course that can be entered upon at any time. The necessity of the student first familiarizing himself with certain optical facts and principles, before he can intelligently study the diseases of the eye, has rendered such a departure necessary, and it will conduce to a more thorough mastery of the subject by the pupil.

The German government has issued a direction to physicians of Alsace-Lorraine to discontinue the writing of prescriptions in French. They must hereafter write in the Latin or German languages.

We learn from private sources that Prof. Waxham, of Chicago, has had ten recoveries in his last series of fifteen cases of intubation in diphtheria; twenty-two in the last series of fifty; and fifty-three in his entire series of one hundred and seventy-three—say thirty per cent. in all, with an unusually good showing, sixty-six per cent., in the last fifteen.

Finding that patients swallow well in the inclined position, with the ordinary intubation tube, Prof. Waxham has practically discarded the use of the artificial epiglottis with which his name has been favorably associated.

A new medical periodical, named the *Maritime Medical News*, has made its appearance at Halifax, N. S. It is edited by Drs. Campbell and Morrow, of Halifax, Drs. Daniel and Allison, of St. Johns, and Dr. McLeod, of Charlotte. We wish our new namesake of the seaboard every success, and especially that it may rapidly outgrow its present bimonthly form into the full stature of a weekly publication, as is becoming to all those who aspire to the guild which imparts "medical news."

REVIEWS.

A System of Gynecology. By American Authors. Edited by Matthew D. Mann, A.M., M.D. Vol. II. 8vo. pp. 1180. Philadelphia: Lea Brothers & Co., 1888.

This volume, which narrowly escapes being ponderous, completes the gynecological portion of the composite treatise. It is clearly and abundantly illustrated by 360 wood engravings and 4 colored plates, and typographically it is up to the high standard of its publishers.

While there can be no objection to a large volume treating fully of a subject in which Americans have done much

excellent and original work, yet the boundary between gynecology and obstetrics has been drawn in favor of the former. This is especially noticeable in the presence of an article on extra-uterine gestation in the present volume. That view of the limitations of obstetrics which recently led a general surgeon to read a paper to an obstetrical society, instructing its members in the performance of laparotomy for extra-uterine gestation, because laparotomy is an operation and he is an operator, illustrates the popular operative furor and marks an erroneous conception of the logical classification of medical science. Obstetrics is the science of gestation, whether intra- or extra-uterine, and the treatment of gestation is the province of the obstetrician. This topic might better have been given to one of the volumes on obstetrics.

Lee, of New York, writes in a concise and practical manner upon diseases of the vagina. He recognizes no clinical distinction between specific and non-specific vaginitis, although the frequency of specific inflammations about the tubes following gonorrhœa is admitted.

Engelmann, of St. Louis, discusses hystero-neuroses at length, citing an extensive array of cases. He considers the hystero-neuroses sympathetic affections, to be distinguished from hysteria. His is the gynecological point of view—that most of woman's diseases originate in the genitalia.

Thomas, of New York, writes upon extra-uterine gestation, holding the view that the diagnosis of tubal, abdominal, and interstitial pregnancy is possible. His record is thirty-three cases, with twenty-two recoveries. His method is early diagnosis; in early pregnancy destruction of the fœtus by electricity; in later pregnancy operative procedures. Twelve cases were treated by electricity; all recovered. He adds a table of thirty laparotomies for this condition, prepared by Harris.

Gross, of Philadelphia, contributes an exhaustive article upon tumors of the breast, written from the standpoint of the surgeon. His work in this subject is classical and standard; his conclusions are based upon the pathology of the diseases discussed and upon extensive observation. The results of his operation for mammary cancer compare favorably with any others.

Park, of Buffalo, writes upon diseases of the breast other than tumors. Pus production he regards as the result of germ-infection; phenomena of swelling, hardness, and congestion he considers caused by blood stasis, without infection.

Jenks, of Detroit, describes fistulæ and their treatment, illustrating clearly the various operations for their cure.

Baker, of Boston, writes upon the diseases of the bladder and urethra fully and clearly; his article being one of the most complete of the volume. Sutton, of Pittsburg, gives an interesting exposition of the operative treatment of non-malignant tumors of the uterus. He considers ergot valuable to check the growth of fibroids, but writes with especial fulness of surgical treatment. Electrolysis is omitted, and Apostoli's treatment is not fully considered in the former volume, in which it is mentioned under the head of electrical treatment.

Lusk's article upon malignant diseases of the uterus states the most recent data on the subject; the prognosis of total extirpation and partial removal is still undecided, statistics giving unexpected and apparently conflicting results.

Laceration of the cervix is treated at length by Bache McE. Emmet, of New York, who states the well-known views of Emmet on this subject and describes the operations for these conditions. He justly condemns the use of nitrate of silver to heal lacerations of the cervix, as advised by Ellwood Wilson. He has found lacerated cervix frequently caused by the operation of dilatation.

Busey, of Washington, describes the various methods of treatment for chronic inversion of the uterus. Kelly, of Philadelphia, treats of injuries of the perineum and pelvic floor. He disbelieves the power of nature to heal lacerations. He describes the modern operations for restoring lacerated tissues, illustrating the article by many original drawings. He considers Emmet's operation for restoring the pelvic floor best.

Goodell, of Philadelphia, contributes a valuable practical article on ovariotomy. The results of his great experience are given in his happy style, and the article may well be considered standard on the subject.

Battey, of Georgia, describes the operation which he ably claims, denying the confident assertions of Tait. His results are interesting, because sufficient time has elapsed since operation to enable a fair judgment of the permanent results. Fifty-four cases were operated upon, thirty-three cured; in fifty the menopause followed.

Coe, of New York, completes Battey's article on ovarian disease, and with Wylie, of New York, writes on tubal diseases. The latter does not believe that gonorrhœal infection is the invariable cause of salpingitis, nor would he extirpate the tubes as invariably as is frequently done. Mental disease is rarely benefited by removing the appendages, unless a positive lesion can be detected. A series of sixty-one operations without a death indicates the perfection of his operative procedures; he relies first of all upon aseptic cleanliness. Cases diagnosticated as recurring cellulitis he has frequently found to be salpingitis, caused by septic infection from instruments, tampons, or post-partum sepsis.

A timely and valuable discussion of the pathology of ovarian tumors is contributed by Howell, of Buffalo; supplemented by the clinical history and diagnosis of pelvic tumors other than uterine and tubal, by the Editor.

Harrison, of New York, completes the volume with a scholarly and interesting article upon uterine displacements, in which modern operative treatment is fully described.

The limits of this notice forbid a critical analysis of the volume; it contains the most recent knowledge upon the subjects of which it treats, fully illustrated, enriched by the practical views and experience which the extensive clinical observation of the writers enables them to offer to the reader. With its fellow, the volume gives a full and valuable exposition of American gynecology at the present day.

La Santé par le Tricicle. By Dr. Oscar Jennings, M.R.C.S., Docteur en Médecine de la Faculté de Paris, etc. Paris: O. Berthier, 1888.

The vast hygienic importance of exercise is slowly and with difficulty regaining in the estimation of moderns the place it once held in the minds of the most cultivated and powerful nations of antiquity. The signs of the times are unmistakable. Beginning with the revival of athletics some twenty-five years ago, the cult of physical exercise has spread from England to America and to France, and has greatly deepened and

strengthened the hold it already had upon Germany. The Latin races, outside of France, are also showing clearly its stimulating and beneficial influence. While we may recognize and deplore its occasional excesses, we should not blindly shut our eyes to the fact that we have in such exercise perhaps the most valuable prophylactic, and certainly one of the most useful therapeutic agencies which can be wielded by the physician of to-day. These, however, are general terms and when we come to consider the matter practically, we find that we must answer the questions: What are the indications for exercise? In what particular condition should certain exercises be prescribed? What is the evidence in their favor?

As regards Swedish movements and massage, these questions have long since been answered, but when we come to specific exercises, especially those which have the invaluable quality of interesting and amusing the patient, we find that but little has been done to systematize our knowledge and enable those of us who can not take up the subject as a labor of love, to advise or prescribe intelligently.

Dr. Jennings, in the work before us, has admirably succeeded, in the case of the tricycle, in producing a systematic description of its effects in different conditions which are usually treated by other and less agreeable methods. Beginning with a history of the machine and its employment, and considering the question of appropriate clothing for men and women, he details the various conditions under which the tricycle may be employed with benefit. Varix, hernia, hemorrhoids, gout and rheumatism, obesity, constipation and diabetes, nervous diseases, etc., receive attention and various cases are cited to illustrate the advantage of this form of exercise. Concluding chapters are devoted to the abuses of the tricycle.

The book is worthy a perusal by all interested from either a hygienic or therapeutic standpoint, in the rational employment of exercise and must undoubtedly be of great value to the enthusiasts in tricycling, whose numbers have of late greatly increased under the stimulus of the charmingly described journeys of Mr. and Mrs. Pennell. It is to be noted that in France a special journal "Le Veloce-Sport et le Veloceman" gives evidence of the widespread interest felt in that country in what is called "wheeling." Several similar journals are published in English and are constantly on the increase.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, November 28, 1888.

The President, J. Solis-Cohen, M D., in the Chair.

Dr. William Hunt read a paper on

DIABETIC GANGRENE.

(See page 685.)

Dr. Thomas G. Morton, in opening the discussion, said that thirteen cases of diabetic gangrene had come under his observation, generally in consultation. In all instances the disease involved some part of the lower extremity, generally originating in one or more of the toes, or about the dorsum of the foot. Many years ago he witnessed a needle operation for cataract in a young girl who was known to be markedly diabetic; sloughing and gangrene of the orbital contents resulted, and death by coma occurred on the third day. With some few exceptions, the patients he has seen with gangrene in the course of diabetes, have been in good circumstances. He referred to this because it has been suggested that this disease more frequently occurs among those who are surrounded by the comforts and luxuries of life, and not among the poor. An inquiry recently made of the superintendents of our State hospitals for the insane shows that although more than twenty thousand patients belonging to the indigent class have been under the care of the present medical officers of these hospitals, there has not, it seems, been a single case of diabetic gangrene in the institutions at Harrisburg, Dixmont, Danville, Norristown, or Warren.

Gangrene in diabetes, in the cases he has seen, has generally started in a local inflammation, resulting from some very trivial cause; on several occasions he has known it to follow the operation of cutting a corn. The occurrence of gangrene in diabetes seems to be a certain indication of great nervous exhaustion, and of a general condition most critical. Although he has observed gangrene as a result of diabetic condition in parts of the body other than the extremities, notably in diabetic carbuncular disease, yet gangrene appears more often in the toes and feet, where there is but a moderate amount of cellular tissue, and where the circulation in such cases is apt to be feeble.

The surgical treatment of this form of gangrene can generally be but palliative, most of the cases he has seen have been promptly fatal. The ordinary principles of surgical treatment should be observed; all tension of parts ought to be relieved by deep, free incisions, which, by relaxing and draining the tissues, permit a better circulation; indeed, he has often arrested the rapid march of gangrene by such treatment. When a line of demarcation forms, which may occasionally happen, the question of amputation may arise. Occasionally the gangrene of diabetes is associated with most excruciating pain, not only in the affected limb, but apparently in the gangrenous parts. He has had two such cases, both females, and in each he performed nerve section, with partial relief in one, and with complete success in the other. In the first he sectioned the posterior tibial, in the other the sciatic. The latter case he saw in consultation with the late Dr. L. M. Service, of Belmont, near the Falls of Schuylkill; the patient was seventy years of age, a large portion of the foot was already gangrenous, the pain in the foot and leg as far as the knee was excessive. He sectioned the sciatic in the middle of the thigh; the gangrene, which was not apparently hastened or influenced by the operation, very slowly extended for some weeks, until a point about four inches above the ankle was reached, where a line of demarcation formed. Subsequently, Dr. Service, Jr., removed all the gangrenous parts without encroaching upon the living tissue. The patient improved, was able to move about her room with comfort, and with entire freedom from pain; eight months afterward she died from an attack of acute dysentery.

Dr. John Ashhurst, Jr., had but one recorded instance of diabetic gangrene in his personal experience.

The patient was a man of middle age, sent to the hospital with strangulated hernia of some four or five days' duration. The attending physician stated that the man had long been a diabetic. Operation was deemed imperative, and was undertaken. There was but a small patch of gangrene in the bowel, which was left in the wound after relieving the constriction, so as to allow the formation of an artificial anus. Next day not only the bowel but the edges of the wound and the surrounding tissues were gangrenous, and death rapidly ensued. It was a case, then, of rapid, moist gangrene, following a comparatively small incision.

Among the influences which predispose to spontaneous gangrene, the most common, perhaps, is alcoholism. Verneuil refers to this fact, and says that in what he calls "alcohol-diabetes" gangrene is particularly apt to occur, as there are then two predisposing causes acting at the same time. Another cause of gangrene, after amputations and other severe operations, as surgeons are aware, is the presence of certain forms of Bright's disease, the granular kidney especially. In these cases diabetes may sometimes coexist, and the presence of sugar fail to be recognized, simply because it is not looked for.

As to the treatment of diabetic gangrene, locally, the less done, as a rule, the better. He would wait not merely for the line of demarcation but for that of separation, which may appear some days or even weeks later than the former, before proceeding to amputate. In the majority of cases of spontaneous gangrene, diabetic or not, it is the better practice to trim away dead parts with forceps and scissors, rather than to attempt a radical operation. He had seen, after amputation, rapid return of the gangrene, spreading extensively and causing death.

Constitutionally, it is a suggestive fact that the one remedy of greatest value in spontaneous gangrene of any kind is a remedy which has obtained a deserved reputation in the management of diabetes, *i. e.*, opium. Opium in doses of one grain or one grain and a half, night and morning, or larger doses if needed, will often show its good effect in tending to arrest the gangrene in a short time. In many cases of spreading ulceration opium is also of value. For the treatment of diabetic gangrene then, opium internally and the less heroic treatment of the affected part seem to offer the best prospect.

Dr. James Tyson said that notwithstanding the exhibit made in the exhaustive paper of Dr. Hunt, he could not but think that diabetic gangrene is a rare disease. Taking his own experience, of fifty-five recorded cases in private practice since 1884, and probably at least twenty-five more prior to that date not so accurately recorded, and realizing as he always had, its possible occurrence, the fact that not a single case has occurred under his observation is a significant one. It is to be remembered, of course, that many of these cases passed from his notice before they terminated. Dr. Hunt had asked for a parallel to this case of paralysis, etc. He could not give an exact parallel, but one sufficiently so to justify an allusion in the same connection. A gentleman of multiplied business and financial interests came under his care for diabetes, when he was fifty-two years old. Three years later there occurred a sudden hemiplegia. Within a few days after the paralysis occurred, the glycosuria disappeared and has not returned, though nearly two years have since elapsed. The percentage of sugar had been at one time as much as seven per cent., and was constantly two and three per cent. Dr. Morton had alluded to the extreme pain in diabetic gangrene. He had observed the same thing in gangrene associated with granular kidney. He scarcely thought it should be regarded as peculiar to the gangrene of diabetes.

Dr. James Darrach had seen but one case of gangrene associated with diabetes. Two others of the legs and two of internal gangrene have also come under his notice. Those of the legs were in women over seventy years of age, and while he could not recollect about the condition of the urine in these cases, from his custom of examining the urine in old people, for sugar, it having been stated that it was not an unusual thing to find it in the urine of the aged, he doubts the probability of sugar escaping his notice.

Dr. Hunt had spoken of the more palpable and well-recognized forms of gangrene. Dr. Wm. H. Dickerson has reported that in the autopsies of five cases of diabetes he found peculiar morbid changes in the cerebro-spinal system, consisting in dilatation of the arteries and a degeneration of the nervous matter at certain points external to them occasioning destruction and excavation of the tissue around the vessel. Kaposi describes a peculiar form of inflammatory gangrene of the skin, which Dr. Darrach suggested might be owing—as has been described as the pathological condition in shingles—to necrosis of the nerve-terminal filaments. He mentioned these as a probable addition to gangrenous affections in diabetes, and would suggest that the nervous system should be examined more than has been done in autopsies of this disease.

He asked Dr. Cohen whether he included in his statement cases with small amounts of sugar, and whether the sugar was established by the cupric oxide test alone. His own examinations have led him to doubt the existence of this element in normal urine, the existence of sugar has been supposed from the reduction of the oxide of copper. This reaction is accounted for by the uric acid and kreatinin. He asked Dr. Tyson how far his examinations sustained this view.

Dr. W. Osler thought that Dr. Hunt underrated the proportion of cases of diabetes that die with pulmonary complications. In his own experience of six autopsies there were three—two of consumption and one of gangrene. Frerichs, in his monograph which contains a study of four hundred cases, states that nearly one-half of all diabetics die of lung disease. There are three forms: The most common is a rapidly fatal lobar pneumonia, very liable to terminate in gangrene. Secondly is a broncho-pneumonia, which is still more liable to be complicated with gangrene. Thirdly, and most commonly, there is genuine consumption, which is tuberculous, as demonstated by the presence of the bacillus.

Dr. Nancrede decided to add another case to the list; it was one of moist gangrene with large amounts of sugar in the urine, where the disease started in the fourth toe. In the other case he amputated the thigh high up for moist gangrene *not* due to diabetes. It illustrated the futility of amputating anywhere near the site of disease, for the artery was thrombosed to the groin. Unless the operation be done above the knee for gangrene of the foot, we are almost certain to have recurrence in the wound with rapid spread of the disease and death.

The practical outcome of this discussion should be to lay down a rule not to undertake any serious operation unless the urine has been tested for sugar, as well as for albumin. Since he assisted at an amputation of the breast in the practice of a friend, in which the urine had been found free from albumin prior to operation, but after the amputation the urine was found to be loaded with sugar, he has pursued this rule. Perhaps if the urinary examination included testing for sugar, as well as albumin, there would be fewer unexpectedly fatal terminations to operations and more cases of diabetes recognized.

DR. J. WILLIAM WHITE said that if Dr. Hunt had been able to elicit from his correspondents the facts as to the coexistence or absence of certain other conditions likely to give rise to gangrene, we could better estimate the relative etiological importance of diabetes in these cases. Thus, in one of Dr. Agnew's cases which he had the opportunity of seeing, and upon whom he performed a knee-joint amputation, the subject was a man of fifty-two years, with chronic alcoholism, and with marked atheromatous changes in the vessels. In this case we had, therefore, two conditions, either of which was competent to produce gangrene without the concurrent diabetes. Dr. Hunt's admirable and otherwise exhaustive paper would, perhaps, have been more conclusive had it been possible to include these points.

DR. S. SOLIS-COHEN said that Dr. Nancrede's remarks suggest an explanation of the comparative meagreness of hospital records of diabetes, and of its supposed rarity among the poorer classes. Urinary analysis is not as general or as thorough as it ought to be. In the Medical Clinic of Jefferson Medical College Hospital, where it is the invariable rule to examine the urine of every patient, no matter how trifling the complaint, not a year passes that one or more cases of unsuspected diabetes, or at least glycosuria, are not discovered. Further, he would suggest that out-patient clinics or dispensaries, and not hospital wards, are the places to search for public records of diabetics of the poorer class. The Jefferson Clinic has from five to ten or more cases of diabetes annually, in a service of about four thousand new cases. At the Philadelphia Polyclinic, during nine months of this year, between three and four hundred patients have been treated in the Medical Department, of whom three have been cases of diabetes. Considering the aggregate number of diabetics at these two clinics, of which he has personal knowledge, and remembering that urinary examinations are not as thorough as they should be in private practice among the poor, and that diabetics, as a rule, are walking cases until near the last; and, therefore, not to be looked for in hospital wards, he must doubt the force of Dr. Hunt's social distinction.

In reply to Dr. Darrach, he said that dependence was never placed upon a single test, and there was little probability that uric acid and kreatinine had been mistaken for sugar. One disadvantage of dispensary practice in these chronic cases was the inability to keep patients under observation for more than a short time. They wandered elsewhere, and might possibly be doubly or trebly reported.

DR. THOMAS S. K. MORTON desired to make more especial point of what the practice of antisepsis enables the surgeon to accomplish in dealing not only with diabetes, but with all sorts and conditions of depraved system, when upon them have been engrafted complications which, with modern methods of wound treatment, are at least entitled to have some attempt made for their relief. Under this heading would be included diabetes, Bright's disease, the graver infectious and contagious diseases, ataxia, and all other serious nutritional alterations dependent upon nerve or other change.

Now the dangers principally to be dreaded in undertaking operations in persons subject to such diseases are those of *infection*. Little need be feared until this dire calamity has occurred. The most innocent forms of senile or other gangrene may at any time become so infected and change their nature to one of greatest malignancy. On the other hand, even large areas of necrotic tissue will not putrefy nor infect the system until bacterial decomposition takes place in them. He was convinced that infected gangrene existing without skin lesion usually has derived that complication from noxious bacteria lying deep in the various appendages of the skin. Hence the evident advisability of protecting a part about to become sphacelated by antiseptic covering; preferably by a carbolic, or combined carbolic and sublimate dressing, for in such cases carbolic acid is a necessary constituent of the dressing that the fat and other skin glands may be deeply penetrated and disinfected by its influence —a property not possessed by sublimate and other disinfectants.

When infection takes place in a case of one of the above-mentioned diseases, the already depraved tissues are powerless to resist the onslaughts of bacteria, and frightful pillage and destruction are the result. Especially is the system unable to cope with the attacks of bacteria when diabetes is present, for then is provided, in addition to the other favorite pabula of bacteria, glucose, which, in tissue solution, affords a most capital medium for the culture and dissemination of poisonous and tissue-destroying microörganisms.

We must then have ever in mind, that in dealing with surgical complications of any of the diseases which have been quoted, but more especially in the case of diabetes, that our object should be:

1. To prevent infection of a part about to become gangrenous, by instituting disinfection and subsequent protection: and, above and beyond all, never to apply a poultice.

2. Only to interfere surgically when absolutely necessary.

3. To operate only with thorough and powerful antisepsis—asepsis will never answer in these cases.

4. To relieve tension absolutely, and to eradicate as much of the diseased tissue as possible, and to disinfect thoroughly and to render sterile all that cannot be so treated; for unless this be accomplished, a favorable result, or arrest of the destructive process, cannot be expected.

5. In suturing or dressing, to make no great traction upon any portion of the wound or its surroundings, and to provide most liberally for drainage.

6. To dress the wound in such a way as to prohibit subsequent infection, and to redress it upon the slightest indication.

7. To remember that non-union and non-healing will probably result, but that we may be bold in doing what seems indicated, for local harm cannot come save by infection.

Dr. De Forest Willard could not agree with the suggestion to make incisions to relieve the tension. He considered any interference injudicious in slow gangrene. The only safe plan is to wait for the line of demarcation. Some months since, a man almost moribund came to the hospital with gangrene of the leg, and wtih crepitation extending as high as the hip-joint. Under excessive stimulation, twenty-four ounces of whiskey daily, the patient rallied, and he cut away the parts with scissors, through the knee-joint. A quick operation, or one near the part, would have caused death. Recovery has taken place, though a spot is now making its appearance on the toe of the remaining leg.

Dr. Tyson was very glad to hear Dr. Darrach's remarks. He did not believe that sugar is ever present in normal urine. The copper-reducing substance in such supposed cases is most frequently the uric acid.

Dr. Ashhurst said in regard to the recommendation to amputate at a very high point in cases of spontaneous gangrene, the general consensus of surgical opinion is against it. In traumatic gangrene, of course, the case is different. There the proper course is, to amputate as soon as possible, at a point well above the limit of the gangrenous portion.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, December 4, 1888.

The President, George W. Jacoby, M.D., in the chair,

Dr. M. P. Jacobi presented a case of supposed

TUMOR OF THE PONS.

The case was that of a child, ten years of age, the illness dating from a fright three years before. The immediate symptoms had been trembling lasting two weeks. A little later the child had commenced to walk as if intoxicated and to have difficulty in using the hands. About three months after the seizure headache had been complained of for a number of weeks. The child had also commenced to grow fat and the head had increased in size. During the past summer the circumference of the head had increased one-third of an inch. At the present time the child was very fat, the chest and abdomen being particularly large. There was no actual paralysis. All of the muscles would respond to faradism, the peroneal muscles only requiring a current particularly strong. There was, however, a progressive paresis. The child could not sit upright and the head fell to the right side. She could walk only if supported, and all of the finer movements of the hands had been lost. There was intermittent external strabismus in the right eye and choked disk in both eyes, referred to a descending degeneration. The appetite was abnormally increased. There had been no pain throughout excepting the headache referred to and no sensory disturbances.

The case of the tumor of the pons reported by Dr. Hun, of Albany, had presented strikingly similar symptoms. In this case the pons has been uniformly enlarged by a slowly infiltrating gliomatous growth.

Dr. Sachs felt especially indebted to the author of the paper for the opportunity of renewing an old acquaintance with this interesting case, which he had seen and lectured upon at the Polyclinic, in April. At that time the size of the head had been about as at present. The general condition was as now, but the patient had been able to walk better She had been able to walk across the floor with the assistance of her father, moral rather than physical support being required. The gait however had been uncertain and the patient had reeled, he thought, to the right side. He had also found the paresis greater upon the right than upon the left, and had noted an apparent paralysis of the right abducens. The changes which he remarked were a progressive paresis of the arms and legs, and slight increase in the size of the head. In the spring, the speaker's diagnosis had been tumor of the cerebellum, favored by the paralysis of the abducens, which had a long course along the ventral aspect of the cerebellum, and might be affected by pressure from the growth. Such a fact would also explain the intermittent character of the symptom noted by Dr. Jacobi. He had not appreciated the objections to this diagnosis toward which the reeling and the vomiting certainly pointed. The knee-jerk was more marked upon the right side. The ankle clonus had been obtained upon the left and not upon the right at all. Dr. Hun's had been a very rare case. The majority of cases of tumor of the pons, had presented different symptoms. He made these remarks simply to justify his diagnosis. Dr. Jacobi had gone more fully into the case and possibly had developed further evidence.

Dr. W. A. Hammond asked why a multiple lesion was excluded.

Dr. Sachs suggested that if one lesion could not be definitely located, the indications for a multiple lesion must be even more obscure.

Dr. Hammond inquired as to the condition of the intelligence.

Dr. Jacobi thought that the intelligence was normal. The child could relate the circumstances of the initial fright very clearly, and had made inquiries in regard to the prognosis in her case.

Dr. Hammond noted a tendency to staccato speech. He had seen a number of cases of tumor of the cerebellum. He referred especially to the case reported by Dr. Gibney. The distinctive symptom of tumor of the cerebellum when uncomplicated with pressure upon the pons, was incoördination without paralysis, while that of pons lesions was a gradually increasing paresis. He had seen also, a good many cases of injury to the cerebellum by arrow wounds, bullet wounds, etc.—perhaps twenty cases in all. These were more likely to furnish indications in regard to the functions of the cerebellum than cases of tumor, where the effects of pressure complicate those of the destructive lesion. He had never seen a case of either tumor or injury of the cerebellum, without vertigo and nystagmus.

Dr. Jacobi closed the discussion. The diagnosis had been studied between an intracranial tumor and a diffuse hypertrophic sclerosis of the brain with a generalized lipomatosis. The latter was excluded by the absence of the more distinctive symptoms of pseudo-muscular hypertrophy and by the existence of the choked disk, the latter, pointing positively to intracranial disease. Diffuse sclerosis was, among other symptoms, invariably attended by convulsions, which had been entirely absent in this case. Intracranial tumor was diagnosticated therefore by exclusion as well as by the positive symptoms and by further analysis, located in the pons.

The speaker had not known that the case had been previvously seen by Dr. Sachs, or that a clinical lecture had been delivered upon it. The latter stage of the affection accounted for the main difference between the symptoms reported by her and those noted by Dr. Sachs. She had not, however, referred to a paralysis of the external rectus but to an intermittent spasm. The muscle could at all times be readily exercised. The history of vomiting too was limited to two occasions in May, and was not more marked than might have been accounted for by some digestive disturbance. Further, there was not only incoördination in this case, but complete incapacity. In lesions confined to the cerebellum, standing was simply difficult. In this case standing was impossible.

Dr. W. A. Hammond followed with a paper entitled

WEAK HEART AND ITS TREATMENT.

The paper referred simply to weakness of the muscular structure of the heart, uncomplicated by dilatation or valvular disease. The affection was very common, and while it might be fatal in its result, it might also be entirely relieved by treatment which could be resolved into medicinal, gymnastic, and dietetic.

Digitalis was the main medicinal remedy. The author had never observed the so-called cumulative effect of this drug. He thought, on the contrary, that it required increasing doses. He administered the infusion in two drachm doses for two weeks, when he increased the dose one fourth, repeating the increase at the end of the second fortnight. Convallaria he considered uncertain and unreliable. Strophanthus he thought of more value. Where there was intolerance to digitalis, this drug might be given. Strychnine was a valuable remedy in weak heart. He prescribed one grain in one ounce of dilute phosphoric acid, ten drops three times a day. Cocaine was a valuable remedy, one-fifth grain being given three times a day. It had been his custom to add two grains to one pint of Malaga wine, a wineglassful being used at a time.

Inhalations and hypodermatic injections were required often in the weak heart of disease. Hypodermatically he had used brandy, digitalin in $\frac{1}{20}$ gr. dose and nitrite of amyl, two drops diluted with thirty drops of glycerine.

Glonoin was useful in $\frac{1}{100}$ gr. dose. Hedicatin was, however, only temporarily useful. Exercise was required for the permanent relief of this condition. Mounting stairs was mentioned as a convenient form of exercise. People living in the country might mount hills. The physician should however be in attendance, and the exercise should be suspended when the action of the heart had accelerated fifteen beats per minute, to be resumed upon its tranquillization. The author's Sanatorium in Washington would contain a modified treadmill in which such exercise could be taken.

The dietetic treatment of weak heart referred particularly to ingested liquids, the quantity of which should be limited. By lessening the amount of liquids ingested, the total amount of blood in the body was diminished and the work of the heart lightened. In some cases he had reduced the daily quantity to twelve ounces, with marked improvement within forty-eight hours. The diet was further modified so as to reduce the amount of fat where this was excessive. He was aware of the work of Oertel and others. He presented the matter, however, as approved by his own experience and observation.

Dr. Leale referred to the numbers of recently enlisted soldiers who fell in the grand review in Washington, their previous occupations having been largely sedentary and predisposing to weak heart, which failed them in response to the demands for the unusual exertion of this occasion. In five hours ten ambulances had been filled, the speaker having been detailed to pick up those who thus fell by the way. The weak heart of typhoid fever and diphtheria was briefly alluded to. The weak heart of adolescence was often encountered, the child, from close school attendance or other sedentary habits, having failed to develop heart muscle sufficient to accommodate the growing frame.

Dr. Heinemann had been very much interested in Dr. Hammond's paper. He was interested to know of the Sanatorium referred to. He had during the past year visited a number of these institutions in Europe, and thought it to be regretted that in this country we had so generally failed to avail ourselves of the peculiar advantages which they afford.

Weak heart is one of the most common conditions met with in medicine; it is almost as common as dyspepsia. While actual disease of the heart may not be detected in connection with the condition, the sounds will be found not what they should be, and the radial artery will be found never more than half filled with blood. The causes for weak heart, are often dyspepsia, lithiasis, and excesses of various kinds—alcoholism, tobacco, and excessive coitus. The treatment should be directed first, toward the removal of the cause, bad hygienic surroundings, anæmia, or whatever it may be. Iron or the oxygen treatment are often efficacious.

In regard to digitalin, he could say that he had seen the cumulative effect, although not, perhaps, the cumulative effect of the materia medicas, which he thought was exaggerated. He had seen the pulse under the influence of digitalis one day eighty or ninety, and the next day forty or fifty, as strong or stronger than before. Convallaria, was he thought, useful combined with digitalis in the cases of heart failure in children and in cardiac dilatation. Cocaine was valuable in curing anæmia, as well as for its direct action upon the heart. In a recent case he had prescribed the wine of cocaine, intending to combine it with iron, but at the end of a week had found the anæmia so much improved, that the iron was considered unnecessary.

In the diagnosis of the weak heart of adolescence alluded to by Dr. Leale, it is well to bear in mind the condition of congenital narrowing of the aorta, to which, attention has been directed by Fränzel. This is not infrequently a cause of sudden death in young people. The speaker would not pretend to diagnosticate the condition except by exclusion.

In regard to the question of exercise, he hoped that treatment would not be systematized upon the plans in vogue in Europe. In the Black Forest, there are paths specially designated for pulmonary diseases, and other paths for other complaints. He had seen a sign on one of these paths reading "This is the end of the Oertel treatment." There is a rule too, that a Sanatorium for pulmonary affections should be built at the foot of a hill, so that the patient having taken his exercise in climbing the hill can easily get back. There is also conflicting

evidence as to the value of these "Cures." The Oertel treatment was antagonized by the Brothers Schott, who substituted a system of resist ' ovements, a species of wrestling with the nurse under the supervision of the physician. Cardiac calisthenics is the appropriate title of these exercises.

DR. HAMMOND closed the discussion. He was pleased to have called out so many interesting remarks. One interesting point in etiology had however, he thought, failed of recognition. This was, that a normal heart under ordinary circumstances, might become a weak heart by simple increase in the general body weight. He had a personal experience on this point. His ordinary weight was two hundred and forty pounds. When it increased to two hundred and sixty pounds, which it did about twice a year, he was troubled with weak heart. He was then accustomed to apply his own prescriptions as to diet and exercise. In this way he could reduce his weight thirty pounds in thirty days. He then again ate and drank what he pleased. When he went up to Mackinaw this summer he had been suffering from weak heart. When he returned he could climb anywhere and was perfectly comfortable.

It might not be out of place to add that the eminent surgeon, recently diseased in this city, had lost his life from this cause. The case had been at first reported as one of cerebral hemorrhage, but hemorrhage except into the medulla does not instantly destroy life, and subsequently the condition of heart failure had been reached.

THE PRESIDENT expressed the indebtedness of the Society to Dr. Hammond for coming from Washington, in order to be present at this meeting.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, December 3, 1888.

THE PRESIDENT, D. HAYES AGNEW, M.D., IN THE CHAIR.

DR. DE FOREST WILLARD reported a case of

OPERATION FOR OPEN URACHUS.

The condition is so rare that he desired to place on record a case which occurred to him three years ago in a child then two years old. The urine had escaped from the umbilicus ever since birth. There was a spot two inches in diameter about the umbilicus with excoriated epithelium from which there was an offensive discharge. About half a drachm of urine escaped in the course of the day. The part had been cauterized several times with nitrate of silver, but it had not closed. The child was a female. The urethra was free from any obstruction, save that the labia minora were adherent in front of the orifice. The catheter could be carried to the top of the bladder, but a probe could not be passed through the urachus to the bladder. He cut down on the umbilicus, freshened the edges, and attempted to get primary union. The union was perfect, but in the course of a month a small papule formed, which subsequently opened and discharged urine, but only a few drops during twenty-four hours, and only when the bladder was allowed to become full. He again cut down and found the bottom in an unhealthy condition. This he scraped, applied chloride of zinc, and inserted a drainage tube. An occasional stimulating application was made and healing was perfect, the drainage tube being cut off as was extruded by the advancing granulations. There has been no return of the trouble. He considered the advisability of retaining a catheter during these operations, but decided that it was preferable to have the child pass water every two hours. After the second operation he emptied the bladder every hour.

This condition of open urachus is an exceedingly rare one, and is discussed in only one or two text-books, Agnew, in his *Surgery*, has a few lines in regard to it. He refers to one case of open urachus, and to another in which, while the urachus was not open, there was a cyst at the umbilical opening which became distended when the urine was retained and which disappeared when the bladder was emptied. He mentions a case of umbilical fistule in which urine was not passed, but in which hair and bone were discharged as a result of extra-uterine pregnancy. In Ashhurst's *Encyclopædia of Surgery*, umbilical fistula is mentioned. It is there stated that there may be various forms of dilatation of the urachus. There may be two or three patent filaments, one of which may become cystic. Tait speaks of urachal cysts of immense size, which have been mistaken for ovarian tumors, the correct diagnosis not being made until the abdomen had been opened.

DR. J. EWING MEARS reported a case of

FRACTURE AND DISLOCATION OF THE VERTEBRAL COLUMN.

in which he performed an operation with the view of affording relief.

June 18. E. F., female, æt. twenty-nine years, single, was brought to St. Mary's Hospital, having fallen from a third-story window, probably while in an epileptic fit, to which she was subject. She had one epileptic attack while being brought to the hospital. Examination showed that there were fracture and dislocation in the lower dorsal or upper lumbar region. There were paraplegia, incontinence of urine and feces, and aching pains in the lower extremities, but no loss of sensation. The day following admission an attempt was made to relieve the deformity by extension and counter-extension. This was without result. A broad binder was then applied around the abdomen which gave some relief. She was ordered fifteen grains of bromide of potassium three times a day. The urine was phosphatic, very turbid and deposited considerable sediment. There was pain in the hypogastrium.

20th. The bladder was washed out with a weak boracic acid solution. A small dark greenish spot appeared on the outer side of the left foot, increased suddenly, and finally disappeared. The urine was very ammoniacal, lower limbs were cold, and there was no return of motion. After consultation with the surgical staff, an operation was decided upon. An incision was made five inches in length to the left of the spinous processes in the region of injury. There was found dislocation between the first and second lumbar vertebræ with fracture of the body of the first vertebra. The dislocation was so fixed that, with all the effort it was thought advisable to make, it could not be reduced. Dr. Mears then cut away the articulating process, and also the lamina of the first vertebra, exposing the canal. He then passed a finger in front and found a fracture directly through the body of the vertebræ. This operation relieved the compression to a certain extent. The wound was then drained, sutured,

and dressed antiseptically. The urine following the operation was bloody and purulent and continued so for some time. The incontinence continued. Two weeks after this operation the patient was suspended and a plaster jacket was applied. No benefit seems to have been derived from the jacket, as it was removed and not reapplied under the direction of the surgeon who followed Dr. Mears's term of service.

August 5. Urine offensive and purulent, but not bloody. The bladder has been washed out at different times with nitrate of potassium, boracic acid, and quinine solutions. The internal treatment consists of quinine, iron, iodide and bromide of potassium.

6th. Massage was instituted and continued for three weeks; under this there was some return of motion in the left leg.

An examination made December 2d shows that the patient can flex and extend the left foot, move the toes and flex the left knee slightly. There has been slight return of motion in the right leg. She had a bed-sore early in September, from which she has recovered. She has had another for the past three weeks, but this is also healing. She is able to sit up in a chair and to move herself in bed. There is still incontinence of urine and of feces.

The return of motion in the left leg under massage is encouraging. Possibly the results would have been better if the patient had been suspended and the plaster jacket had been applied immediately after her entrance to the hospital. Since the operation Dr. Mears had received a paper from Dr. Burrell, of Boston, who refers to a number of cases in which decided relief has followed the application of the plaster jacket, and he records a number of cases in which operation has been performed. It is to be noted that he removed the articulating process and the lamina on the left side, and it is on that side that motion has returned. This seems to indicate that if the operation had been extended to the right side, still greater benefit might have been afforded. In regard to the effect of the accident upon the epileptic seizures, he would state that the patient has had but one attack since her admission into the hospital, and that occurred some three weeks since.

Dr. William Hunt said that in these cases he thinks that we should not confine our attention wholly to the injury of the spinal column. He has no doubt that at the time of many of such accidents violence is also often done to the sympathetic nerves and ganglia, and that the injury will prove fatal in a shorter or longer period, according to the power of endurance of the patient. The chief diagnostic signs of the sympathetic being coincidently injured with the spinal column and cord, are the effects upon breathing upon the intestines and bladder, as indicated by tympany, obstinate constipation, and retention or incontinence both of feces and urine. Priapism through vaso-motor disturbance is also often present and indicates injury to the sympathetic. It is a very unfavorable sign.

Dr. John B. Roberts said that the case described was under his care after Dr. Mears's term of service had expired. He thought that the motion in the left leg and foot improved while he was on duty. He gave her large doses of iodide of potassium, and endeavored to get rid of the cystitis by the use of intravesical injections. He saw an interesting case at Blockley Hospital, two months ago, in which Dr. J. William White cut away the spinous processes and laminæ of three or four vertebræ in searching for the cause of a paraplegia which it was thought might be due to the pressure of a tumor. By this means the cord was readily explored. No tumor was found. There were some adhesions between the dura mater and the pia mater. These were broken up. There has been, he understands, some amelioration of the symptoms. These two cases, with one operated on by Dr. Deaver, are the only three operations of this kind which have been performed in this city, so far as he knew.

CORRESPONDENCE.

INFLUENCE OF ANTIFEBRIN ON THE SECRETION OF MILK.

To the Editor of The Medical News:

Sir: In your issue of December 8th, I notice a report on the "Effect of Antipyrin on the Secretion of Milk." It has called to mind a case that I attended during the month of July, in which the administration of *antifebrin* seemed to have the opposite effect. I used antifebrin at irregular intervals, in the case of a lady with mild typhoid fever, with a view of controlling the temperature. The dose was five grains two or three times in twenty-four hours. At the time she was nursing a child, between five and six months of age. As the fever developed the secretion of milk developed very much, but I found after the administration of each dose of antifebrin, when its effect began to show itself on the temperature, that there was a sudden accumulation of milk in both breasts, to such an extent as frequently to demand relief by mechanical means. I do not regard this as a direct effect on the mammary gland, but suppose it to have been indirect by lessening the fever and by promoting secretion generally as a result, as a sweat would occur at the same time. Recollection of this fact may, however, be of service in other cases.

Reasoning from analogy (provided the explanation of its action given above is correct), we have good cause to think it would be especially indicated in so-called milk-fever, with high temperature and delayed establishment of the mammary secretion. Very truly yours,

W. R. Cushing, M.D.

Dublin, Va.

NEWS ITEMS.

Glanders.—The following letter by Dr. George M. Sternberg, U.S.A., upon the subject of glanders as an infectious disease, and the propriety of killing animals suffering from said disease or farcy, as soon as recognized, has been published by the War Department, for the information and guidance of the army.

Glanders is an infectious disease in which the infectious agent has been demonstrated to be a living microörganism—a bacillus.

The bacillus of glanders was discovered by the German bacteriologists Löffler and Shutz, in 1882, and the discovery has since been confirmed by several other competent bacteriologists. It is found in the nasal secretions and ulcers of the mucous membrane, in the "farcy-buds," pustules, and enlarged lymphatic glands of infected animals, and it is probable that it is also sometimes present in the urine. It is a slender rod, somewhat simi-

lar in appearance to the well-known tubercle bacillus, but more uniform in size and somewhat broader. In preparations stained with fuchsin or with Löffler's solution of methylene-blue, clear spaces are often seen in the rods which have been thought by some authors to be spores, but this is doubtful, as Löffler has found that no development occurs after the bacilli have been exposed to a temperature of 55° C. (131° F.) for ten minutes.

Pure cultures of this bacillus have been shown to produce typical glanders in horses and asses, and it is recognized by bacteriologists as the cause of the disease. The disease may also be transmitted by inoculation to guinea-pigs and to field-mice, which animal (preferably guinea-pigs) may be used as a test of the infectious character of the nasal secretions of a suspected animal.

Exact experiments have shown that the bacillus of glanders is killed by exposure for five minutes to a five per cent. solution of carbolic acid, or by 1 to 5000 solution of corrosive sublimate. In practice it will be best to rely upon boiling water for the disinfection of all articles which can be immersed in it without injury—rope halters, blankets, curry-combs, bits, etc. To keep on the safe side, half an hour may be fixed as the standard time during which articles to be disinfected shall be immersed in boiling water, or exposed to steam at a temperature of 212° F.

Articles of leather should be repeatedly washed with a five per cent. solution of carbolic acid or a 1 to 1000 solution of corrosive sublimate; or immersed in such a solution for at least one hour. If the solution can be used hot, say 180° F., without injury to the material, this will be desirable.

All exposed parts of an infected stable should be thoroughly and repeatedly (three or four times) washed with a hot solution of one of the above-named disinfectants. The carbolic acid solution (five per cent.) will be preferable on account of the poisonous nature of the solution of the bichloride of mercury; but the latter is less expensive, and under proper supervision there should be no special danger in using it. After its use, feeding-troughs, etc., should be thoroughly scrubbed with hot water to remove all traces of the poisonous salt. The application of a lime-wash to all surfaces, after complete disinfection, will be desirable.

Stables occupied by infected or suspected horses should be disinfected daily by washing exposed surfaces with a five per cent. solution of carbolic acid, and nose-bags, halters, buckets used for drinking water, etc., should be carefully washed with the same solution or with boiling water.

In view of the reliability of known measures of disinfection, when properly executed, it is not necessary or justifiable to destroy Government property of value which has become infected by contact with animals suffering from glanders.

The propriety of killing animals suffering from glanders, as soon as the nature of the disease is recognized, is undoubted.

Killing the Yellow Fever Germs.—A press despatch from Jacksonville, dated Dec. 2d, states that F. E. Smith is busily engaged in building the steaming and drying rooms to be used for disinfecting bed clothing, carpets, and clothing. The rooms are tight compartments, ten by twelve by six and a half feet in dimensions, and are closed by trap-doors which are raised by means of pulleys. There is one steaming room and two drying rooms. The floors of the rooms are covered with steam pipes, those in the steaming room being perforated every six inches to allow of the escape of fine jets of steam. Mr. Smith expects to begin operations on Dec. 4th.

For blankets and such other articles of bedding as can be saved, three large cylindrical vats have been prepared, where they will be thoroughly purified with boiling water, after which they will be put through a steam wringer which revolves with great rapidity, forcing the water out.

Tin Foil.—Chocolates, confectionery, dried fruits, cheeses, and other alimentary products are very often wrapped in what appears to be, and is described as, tin foil, but is really an alloy containing lead. This dangerous practice is now prohibited in France, and the tin foil destined for this use must, under penalty, be composed of "fine tin," that is, an alloy containing at least ninety-seven per cent. of tin. Here is a subject which may be worth the investigation of public analysts.—*British Medical Journal*, December 8, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING DECEMBER 15, 1888.

PENROSE, THOMAS N., *Surgeon.*—Ordered for examination, preliminary to promotion.

OBERLY, A. S., *Medical Inspector.*—Ordered before the Retiring Board.

DICKSON, S. H., *Passed Assistant Surgeon.*—Detached from the "Richmond," and ordered to the "Pensacola."

ASHBRIDGE, RICHARD, *Passed Assistant Surgeon.*—Detached from the "St. Louis," and ordered to the "Richmond."

AUZAL, ERNEST W., *Assistant Surgeon.*—Promoted to Passed Assistant Surgeon.

WIEBER, F. W. F., *Assistant Surgeon.*—Promoted to Passed Assistant Surgeon.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 11 TO DECEMBER 17, 1888.

By direction of the Secretary of War, JEDEDIAH H. BAXTER, *Colonel and Chief Medical Purveyor*, will proceed to St. Louis, Mo., and Hot Springs, Ark., on public business connected with the Medical Department; on completion thereof, to return to his proper station.—Par. 13, *S. O. 289, A. G. O., Washington*, December 12, 1888.

LA GARDE, LOUIS A., *Captain and Assistant Surgeon*.—Is granted leave of absence for one month, with permission to apply for an extension of three months.—Par. 15, *S. O. 290, A. G. O., Washington*, December 13, 1888.

By direction of the Secretary of War, NATHAN S. JARVIS, *First Lieutenant and Assistant Surgeon*, is relieved from duty at Fort Leavenworth, Kansas, and will report to the commanding officer at Fort Lewis, Colorado, for duty.—Par. 14, *S. O. 290, A. G. O., Washington*, December 13, 1888.

CHAPIN, ALONZO R., *Captain and Assistant Surgeon* (U. S. Army).—Is granted leave of absence for fourteen days, to take effect on or about December 24, 1888.—Par 1, *S. O. 261, Headquarters Division of the Atlantic, Governor's Island, New York City*, December 11, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LIII. SATURDAY, DECEMBER 29, 1888. NO. 26.

ORIGINAL ARTICLES.

THE TECHNIQUE OF OVARIOTOMY AS PRACTISED AT THE UNIVERSITY HOSPITAL, BY PROF. WM. GOODELL.[1]

BY LEWIS H. ADLER, JR., M.D.,
RESIDENT PHYSICIAN AT THE UNIVERSITY HOSPITAL, PHILADELPHIA.

ALTHOUGH the general plan of treatment about to be described agrees with that laid down in Professor Goodell's *Lessons in Gynecology*, yet in some essential features it will herein be found to differ. For instance, opiates are never given now unless positively indicated. They were formerly used in every case, with the result of nauseating and constipating the patient, as well as checking all the secretions and excretions of the body.

Again, the habit of giving cracked ice has been abandoned, unless specially called for, as it tends only to create thirst and hinders digestion.

Likewise, food, which for a long time was given as soon after the operation as the patient could bear it, is not given now until after the lapse of twenty-four hours, nor is anything given by the mouth for this period of time if it can be avoided. By the adoption of this plan, the stomach of the patient is allowed to recover from the effects of the irritation induced during etherization, so that when food is given she is not made sick by the sight of it, as well as for the more important reason that intestinal peristalsis is not set up, and the consequent risk of peritonitis involved.

In the preparation of a case for operation, great care and attention must be exercised to secure a favorable result. All the emunctories of the body should be active; medicines of a tonic nature should be given, if indicated; moderate exercise indulged in, if the patient is able to stand it; and a good, substantial, easily digested diet required.

Some surgeons state that it makes no material difference whether a patient be operated upon during menstruation. Prof. Goodell, with the majority of operators, is inclined to think that midway between the "periods" is the time for an *operation of election;* though any time before, during, or after this may be taken, if the urgency of the case requires it.

On the day previous to the operation the patient is given early in the morning a full dose of *castor oil*, preferably, or else *compound liquorice powder*, or a dose of *Epsom salts*. During the afternoon of the same day the abdomen is thoroughly scrubbed, previous to which the patient has taken a warm soap-bath. After the abdomen is thoroughly cleansed, clean clothes are put on and she goes to bed. The following morning, the day of the operation, she is given an enema of soap and water, to empty the lower bowel. This is followed by another bath, together with a vaginal douche of bichloride of mercury, 1 to 2000. A carbolized towel is then placed over the abdomen and covered with waxed paper. This is retained in place by a roller bandage or binder.

Formerly it was the custom to shave the pubic region on the day preceding the operation; but as this needlessly alarmed the patient, Dr. Goodell defers this until after the anæsthetic has been administered.

Should there be a tendency to sleeplessness the night previous to the operation, some hypnotic should be given, such as potassium bromide, chloral, or the like; but not opium.

To avoid vomiting during or after the operation, a light breakfast is given upon the morning of that day.

The time for the operation having arrived and everything being in readiness: the instruments immersed in boiling water, in which a solution of carbolic acid has been placed; the hands of the operator and assistants chemically cleaned; the abdomen re-washed with a 1 to 1000 solution of corrosive sublimate; and the patient thoroughly etherized—the operator, standing upon the right side, begins the operation by an incision in the median line of the abdomen, cutting through the skin and fat with the intention of hitting the linea alba beneath. This latter is not always an easy matter, especially when the walls of the belly are not distended by a tumor. An excellent way to find this line is that employed by Prof. Goodell, who passes a probe across the rectus muscle, to the right and to the left, and the nearest point of arrest indicates the linea alba. The dissection is cautiously continued until the peritoneum is reached, which lies behind the recti muscles, separated by a cellulo-adipose tissue. A grave error which I once saw committed elsewhere is the mistaking the peritoneum for the walls of the cyst, and peeling the same off as you would the cyst from its connection.

[1] Read before the D. Hayes Agnew Surgical Society.

It is not always an easy matter to distinguish the two, but, as a rule, the peritoneum is not as pearly a white as the sac of a cyst, and it is always covered with a layer of peritoneal fat.

Before opening the peritoneum the hemorrhage incurred thus far is to be checked with catch forceps made for this purpose, after which, by means of the dissecting forceps, it is picked up and gently cut through, care being taken to avoid any stray loop of the intestine; after which, by inserting two fingers of the left hand in the opening thus made, the wound is enlarged to the necessary extent.

The opening in the abdomen does not complicate the case any by being made as large as desirable. Should necessity require it, the wound must be enlarged, as is sometimes done, even to the ensiform cartilage. When the incision extends beyond the umbilicus, it should be made to go directly through the navel. Some operators afterward cut out the umbilicus; but the plan first mentioned is, upon the whole, the safer method.

If a cyst is discovered bound by adhesions to the abdominal walls, it should be separated by the finger, and thereby avoid as much of the subsequent hemorrhage as possible, for it sometimes is a very troublesome thing to control. Should much hemorrhage ensue, it should be controlled by ligatures or catch forceps, as much of the success of the operation depends upon this apparently minor point.

When all the reachable adhesions have been severed the cyst is ready for tapping: the trocar and canula, thoroughly clean and previously dipped into a solution of carbolic acid, are plunged into the interior of the tumor at the upper part of the wound. The trocar is withdrawn, when the fluid flows into the vessel prepared for its reception. When the sac contains more than one cyst, it will be necessary to push the trocar into each cyst until all have been drained. If any of the fluid escapes into the abdominal cavity, as it often accidentally does, antiseptic precautions promptly taken will, as a rule, prevent any subsequent harm.

The empty cyst is now pulled out through the abdominal wound, and severed from its attachment; previously to which, strong forceps with a firm grip are passed one on each side of the pedicle of the tumor to control the bleeding and to secure the same, for ligaturing. I say *ligaturing*, for Dr. Goodell prefers the silk ligature, carbolated, which in time, he says, becomes disintegrated and absorbed, to any of the other methods proposed by ovariotomists. It is a subject—this final treatment of the pedicle of the tumor—upon which, at the present day, there is much disagreement. Among the methods proposed are the clamp, the ligature, the cautery, and the écraseur. This last method is the only one I believe which is almost universally condemned. So that with this exception, any of the plans, according to the exigencies of the case, and the preference of the operator, may be used. Dr. John Homans, in relating his experience in 384 laparotomies, says that he considers the actual cautery, when properly used, sufficient in almost all cases of ovariotomy to secure the pedicle. He objects to the silk ligature, saying that it is not always absorbed or encysted. In proof of this statement, he mentions a case in which a silk ligature escaped two years after it was fastened to a pedicle, with the knots and cords of same in perfect condition.

The pedicle having been firmly secured, it is returned to the abdominal cavity, where in most cases —as shown upon the post-mortem table—it becomes encysted or encapsulated, and finally absorbed.

The wound in the abdominal walls is now ready to be closed. First, however, the abdominal cavity must be thoroughly cleansed, particularly in Douglas's pouch and the peritoneal fold between the bladder and the womb, as otherwise septicæmia or peritonitis may result. After this has been done a large, flat sponge is placed over the intestines, under the wound, in order to catch the blood that issues from the suture tracks. Each suture is double-threaded —that is to say, has a needle upon each end—which allows its being passed from within outward. Each needle is inserted about a quarter of an inch away from the edge of the wound, and it is well, if possible, to include in the sutures all the layers of the parietes, cutaneous, muscular and aponeurotic, peritoneal.

I would mention particularly the muscular layer, because many ovariotomists think that by including the recti muscles abscesses are apt to follow in the suture tracks. Dr. Goodell is of the opinion, and rightly, that it is better to run the risk of a stitch abscess, than the more serious and grave one, of ventral hernia. His rule is to include these muscles in the suture, whenever they are exposed to view.

When all the sutures have been inserted, the flat sponge, previously placed underneath to catch the blood escaping from the punctures, is removed, and the abdomen reëxamined to see if any oozing has occurred; then, if all is dry, the operator catches in one hand all the sutures on his side; his assistant does the same upon the opposite side, and the edges of the wound are brought firmly together, and, at the same time, all the air is expelled from the abdominal cavity. Each suture is now tied by means of the surgeon's knot.

When the whole wound is closed, the ends of the sutures are gathered together and cut off several inches from the knots. If any superficial stitches are needed they are now put in, after which the wound is ready to be dressed. First, however, it is thoroughly cleansed and dried. Iodoform is then liberally sprinkled over the surface of the abdomen, particularly into the umbilicus; upon this a fifty per

cent. iodoform gauze is placed and over this several layers of dry carbolated gauze, over which adhesive strips of rubber plaster are fastened. Next comes a wad of cotton wool which has been thoroughly baked, in order to destroy any germs, and finally over all a flannel binder.

Formerly it was the custom of Prof. Goodell to use an opium suppository at this stage of the case; but for reasons already stated this practice has been stopped, and it is now the exception, rather than the rule, to use an opiate to relieve pain in these cases.

Hot bottles are now applied to the body, care being taken that they do not come in too close contact with the skin, as the burns which they make are unusually severe. Absolute quietness must be observed and no one allowed to see the patient but the nurse and the physician.

When the case is one requiring a drainage tube, the fluid in the same must be removed every two hours for a day or so after the operation, and to prevent injurious pressure upon the bowels by the tube it must be lifted up and turned around occasionally. It can be removed entirely, whenever the fluid is colorless, or nearly so, and does not exceed in quantity a couple of drachms. This is usually about the third or fourth day.

The subsequent treatment of the patient, after the operation, needs the most careful attention. She must not be left alone at any time; the pulse, respiration, and temperature must be carefully noted at least every two hours. If the patient be greatly shocked, every effort must be made to secure reaction; which, in part, is accomplished by the hot water cans already applied, and by hypodermatics or enemata of brandy and the like. Should obstinate vomiting occur, ice should be given or sinapisms applied to the epigastrium. If these fail, it is stated by some authorities that minute doses of calomel and morphia, repeated at short intervals, are efficacious. If there is much flatulence, it must be relieved by inserting a flexible catheter high up into the rectum, by enemata of turpentine or by turpentine combined with soap and water.

As a rule, it is necessary to catheterize a woman for a day or so after the operation; but it is a good plan to avoid this as much as possible, as the too frequent use of the catheter is likely to cause an irritable bladder, and one which is slow to respond to treatment. For the first twenty-four hours nothing whatever must be given the patient—by the mouth, especially—unless indicated. Even cracked ice is avoided by Dr. Goodell, though it was his former practice to give it, as stated in his book recently published. On the second day, half an ounce of milk is given every two hours, and the quantity is increased gradually as the patient's condition demands.

If the temperature is high, 101° or over, ice should be applied to the head, the body sponged, a saline cathartic given, or some of the popular anti-febrifuges administered.

The bowels are to be freely opened on the fourth or fifth day after the operation, with castor oil, or if, for some reason, this drug cannot be given, compound liquorice powder is a good purge, and being agreeable to the taste, most persons will readily take it. If these fail to act, they must be supplemented by an enema of soap and water.

From a week to eight or nine days, the dressing first put on is ready to be removed, and the stitches taken out. The wound is first washed with some antiseptic solution, then with alcohol, after which the stitches are removed, and the abdomen re-washed and dressed as before; but with the addition of adhesive straps. To prevent any possibility of hernia at the site of the wound, the patient is kept in bed from two and a half to three weeks, and then for months has to wear some kind of a close-fitting binder or abdominal supporter. I might state that some ovariotomists are opposed to this long wearing of the binder, one of the principal objectors being Mr. Frederic Treves, a London surgeon, who states that by an over and prolonged use of an abdominal support, the parietes are weakened, and that the secret of success in preventing ventral hernia is not to allow the patient to get out of bed too soon—a month or longer not being an unreasonable time.

The subsequent dangers of ovariotomy likely to arise are collapse, hemorrhage, septic poisoning, and peritonitis.

Collapse usually occurs immediately after or during the operation. The treatment has already been alluded to in detail.

Hemorrhage, when internal, will require the wound to be reopened, and the bleeding vessels sought for and tied.

Septic poisoning is indicated by a frequent pulse, an elevated temperature, feebleness, mild delirium, and, at times, marked chills. The treatment is a brisk saline cathartic, and the administration of large doses of quinine. This complication of the case, as a rule, ends fatally.

Peritonitis is the greatest cause of the mortality in this operation. Its symptoms are well known: a wiry pulse, extreme abdominal tenderness and distention, etc. The prognosis in a case of peritonitis complicating ovariotomy is not usually grave. Saline cathartics, poultices over the abdomen, and stimulants are called for, and is the treatment usually pursued.

In concluding this article, I wish to make a few remarks about *menstruation after both ovaries are removed*, and to discuss briefly the question, *whether ovariotomy, after puberty, unsexes a woman.*

It is an undoubted fact that some women do menstruate after their ovaries are extirpated. There is a case in the University Hospital now who, for two years and two months after her ovaries were removed, saw regularly her monthly sickness. Some authorities explain this unexpected condition by saying it is due to force of habit, to a law of periodicity; others, to some fragment of ovarian stroma left behind by the operator; whilst a few claim its existence to be due to a third or supernumerary ovary. Any of these theories might be accepted, for they are all plausible enough, but the exact truth is not known, and probably never will be.

Finally, as to a woman being unsexed by the operation of ovariotomy. I think most authorities agree to the fact that, after the removal of the ovaries, a woman's sexual feelings gradually lessen, but are at no time entirely lost.

Dr. Goodell replies so aptly to this question that I cannot do better than quote his own words upon the subject: "So far as can be ascertained, spaying after puberty does not unsex a woman; at least not more than castration after puberty unsexes a man. In the one, the ability to inseminate is lost; in the other, the capability of being inseminated; but in both, the sexual feelings remain pretty much the same."

NOTES ON THE USE OF STROPHANTHUS.

By J. Y. DALE, M.D.,
of Lemont, Pa.

Last summer I was called upon to treat a case of exophthalmic goitre, in a married woman aged about thirty-five, the mother of half a dozen children. The disease, which had been of several months' duration, was progressing rapidly, and, as a result, the patient was very nervous and anæmic. The action of the heart was so tumultuous and irregular that the sounds could not be differentiated, nor could the frequency of the pulse be accurately determined, though when the patient was at rest it did fall below 120.

Tincture of strophanthus was prescribed in doses of five drops t. i. d., to control the action of the heart, which it did effectually—at least after two weeks' employment the heart became regular in rhythm, though not in force, the pulsations were reduced to 80, and the murmur in the goitre lessened in intensity. At that stage of the disease I gave a mixture containing six drops of tinct. ferri chloridi and two drops of liquor. arsenici chloridi, at a dose, three times daily, but in three days such general and extensive anasarca had developed that it was omitted. Under the continued use of the strophanthus, and of tonics, with the faradic current applied to the goitre, there was a decided amelioration of all the symptoms; the action of the heart became steadier, the goitre lessened in size, the appetite improved, and the strength increased. Unfortunately, after being so much benefited, my patient declined to submit to further treatment.

Amongst the cases of typhoid fever treated during the past season, I had eight patients in whom, after the first few days, a condition of apyrexia supervened, continuing, unless there was a relapse, until the commencement of convalescence. These cases were usually mild, though several of them had most of the prominent symptoms of the disease, excepting, of course, the elevation of temperature; but they were nearly all lingering, some lasting four weeks before the tongue cleaned. They were mostly attended by cardiac weakness, shown by breathlessness after slight exertion, feeble heart sounds, a slow pulse, sometimes under 60, coldness of the extremities, and often of the entire surface of the body, necessitating the use of artificial heat. When prescribed in these conditions strophanthus exerted a most happy effect. I have also used the drug under other circumstances, when it seemed to be indicated, with apparently excellent results.

Judging from my very limited experience, strophanthus would seem to have considerable power as a heart tonic, but to test the value of a remedial agent requires prolonged and careful trials by many different observers; and to aid in this good work, I wish to contribute my mite to the recorded experience of the profession respecting the merits of this new candidate for therapeutic honors.

A CASE OF ARSENICAL NEURITIS.

Reported by H. C. WOOD, M.D.,
professor of materia medica and therapeutics and clinical professor of diseases of the nervous system in the university of pennsylvania.

The following case is perhaps worthy of record as an illustration of the value of persistent careful treatment in nervous degenerations due to metallic poisonings. At the time when the woman first entered the University Hospital, the symptoms were so severe that it seemed impossible that a good result could be achieved. The thighs and legs below the knee could almost be spanned with one hand.

I would call attention to the large doses of strychnine employed; the effects of the alkaloid were not so pronounced and brilliant as in cases of lead poisoning, but I believe distinctly conduced to recovery.

L. B., aged twenty-five, mother of one child, enjoyed good health until June 1885, when she ate "rough on rats" spread on bread which had been put in the closet to kill rats. After this there was some discomfort in the stomach; but according to her own statement, not until five hours had

elapsed were the symptoms very marked. She then vomited matters having a metallic taste, and during the following night vomiting was repeated several times. There were also violent pains in the stomach and all over the body. The next day there was repeated vomiting, with great epigastric tenderness, and violent pain produced by taking water or other substance into the stomach, also diarrhœa. She was in bed for several days, then got up and was about until the 9th of July. There was, however, persistent irritability of the stomach with frequent vomiting; great abdominal pain and tenderness; no appetite; small ulcers in the mouth; obstinate constipation, and, according to her assertion, some days after taking the poison, puffy face followed by general swelling of the body; and, subsequent to this, the appearance of a red rash with small watery blisters followed by an outbreak of large and small boils all over the body. The secretion of the urine is said to have been very scanty. By the end of the eighth week the skin eruptions had disappeared, but had left the skin harsh and desquamating. Along with these symptoms there were neuralgic pains in the limbs and progressive emaciation, and she did not begin to improve or gain flesh until September.

She entered the University Hospital on the 21st of January, 1886. At that time she was pale, emaciated, with the legs and arms very thin and flabby; tongue furred, marked with shallow transverse fissures and slightly tremulous. The appetite and digestion good with no evidences of gastric discomfort. Pulse 92, but weak; heart sound weak, but normal; very slight tenderness over the epigastrium. Menstruation, which had not occurred for several months after the poisoning, had reappeared. The movements of the arms could be executed, although very feebly. The fingers were numb and somewhat distorted in their habitual position. She could not button her clothes with the eyes shut, and could, with difficulty, when the eyes were open. The legs were excessively wasted and covered with long, harsh, black hair, much more pronounced below than above the knee. According to her statement, this hair had developed after the poisoning. She habitually lay with the knees drawn up, and the hamstring tendons tense, and on attempting to straighten the legs, pain was caused just above the patella. She complained of a feeling of picking and stinging in the legs, and when she was touched of a soreness as though she had been bruised; there was also much pain in the toes and occasional sharp cutting pains shot down the nerve trunk to the legs; the nerve trunks were tender. Specific gravity of the urine 1019; no albumin. No response of the leg muscles could be obtained in the ward to the faradic current, and the case was referred to Dr. Lloyd for a study of the electrical condition of the muscles. He reported as follows:

Right leg. Peronei muscles much diminished. 16 milliampères cause slight contraction. C C C = A C C, also nodal changes. Gastrocnemius about the same. Degeneration reaction of the adductors and vastus internus. Rectus femoris, no response.

Left leg. Condition about the same as right leg.

Right arm. Marked diminution in response in the median nerve; some of the flexors do not respond at all, some show nodal changes. Extensor and ulnar muscles do not show De R to any extent; the changes are rather nodal than serial.

Left arm. Similar to the right.

To the faradic current there is marked diminution in median group, slight diminution in ulnar and extensor group.

Deltoids. Both normal; slight increase in response to galvanism.

There was no anæsthesia to be discovered by means of a single point; but in all of the body, and especially the legs, there seemed to be hyperæsthesia. (Examinations of the sensation by the æsthesiometer or of temperature sense, if made, were not recorded.)

After sitting up, feet would become swollen. On putting the feet and legs in hot water for ten minutes, then rubbing them with ice, and then reimmersing them in the hot water, a glow was created in the feet, but the pale color of the legs did not change. She was ordered massage, treatment with the galvanic current, the practice of the hot water bath with the ice rubbings, daily; the iodide of potassium, one grain, three times a day with tonics.

By January 1st there had been no distinct improvement in the legs, but some in the arms. It was noted that the current from a battery of forty cells produced good contractions in the arm muscles, but the current from sixty cells caused in the leg very little effect except pain, although some contraction could be obtained in the adductors and the anterior tibial muscles. In addition to the previous treatment, she was given hypodermically one-thirtieth of a grain of strychnine in the arms and legs twice a day. A few days later it was found necessary to stop the injections of the strychnine on account of local irritation produced by them, and she was ordered the alkaloid in ascending doses by the mouth.

February 19, 1886, it was noted that she had been slowly improving, and that "at present the application of the constant current elicits contractions from the muscles of the legs; also that she is taking five grains of the iodide of potassium and one-third of a grain of strychnine per diem."

March 11th, it was noted that great improvement had taken place in the hands, but less in the lower extremities. An attempt was now made by attaching weights to the feet about one-half hour daily to aid the massage in straightening the lower extremities. Hypodermic injections of atropine into the flexors of the thigh were also given daily before the attachments of the weights.

April 5th, it was noted that the limbs were somewhat straighter than a month before; that she was able to propel herself around the ward by a wheel crutch which had been obtained for her a few days previously, but that in the crutch she supports almost all her weight by the arms. The daily dose of strychnine had reached three-fifths of a grain.

March 28, 1886, it was noted that she had free use of her arms and hands and thighs; on the wheel crutch she could use her feet enough to propel herself with ease, and she could stand by a table. There was still, however, constant abnormal flexion

of the knees. Her appetite and general health were good, and she insisted upon being discharged from the hospital.

October, 1888, a sister-in-law of Mrs. B. came to my office as a patient: she stated that three or four months after Mrs. B. left the hospital she became pregnant, and was in due time delivered of a healthy child; that for a long time after leaving the hospital she gradually did more and more of her housework sitting in a chair, but that little by little she began to use her legs more freely, and is at present restored to her health, walking about doing her various household duties, etc.

MEDICAL PROGRESS.

The Uses of Creolin during Labor.—DR. MINAPOULUS read a paper at the Munich Gynecological Society, giving the results obtained from the use of creolin during labor, at the clinic of Professor Winkel. The irrigation of the vagina was begun with a ½ per cent. solution, then increased to a 1 per cent. and later to a 2 per cent. solution in conjunction with the use of two pints of lukewarm water at each sitting. These irrigations were made immediately before and after delivery, and were used in the subsequent lying-in period only, when the temperature rose to a fever point. In every instance the mother would complain of a slight burning sensation, no doubt due to some lacerations of the mucous membrane, the result of labor.

Before each examination the hands and instruments were thoroughly disinfected with creolin.

Of 140 cases thus treated, 2 were severely infected, 1 dying, and 19 were less severely infected.

The two septic cases were treated with the ½ per cent. solution, and only during labor, and not immediately before nor after delivery. Of the remaining 19, 2 were examined in their own dwellings, and, no doubt, were already infected when they came to the institution. There thus remain 17 slightly infected cases.

Of 140 cases treated with a ½ per cent. sublimate solution, 3 were severely infected, with 1 death, and 13 less severely.

The author concludes that the results obtained with creolin are as favorable, if not more so, than those obtained with corrosive sublimate. Cases of abortion, in which the secretions had a gangrenous odor, were treated with excellent results, with a 1 per cent. solution of creolin. Vaginal tumors healed quicker when treated with a concentrated solution of this drug, than when treated with the ordinary bichloride of iron applications. Creolin, it is claimed, will prove a valuable substitute for corrosive sublimate and carbolic acid, as it posseses all their advantages with none of their disadvantages.—*Wiener med. Presse*, November 25, 1888.

For Dyspepsia accompanied with Palpitation.—

R.—Compound tincture of cardamon . ℥ij.
Aromatic spirits of ammonia . ℥ij.
Bicarbonate of soda . . . ℥j.
Infusion of gentian . . q.s. ad ℥vj.—M.

Sig. One teaspoonful when required.—*Revue de Thérapeutique*, December 1, 1888.

Spasm of the Glottis of Nasal Origin.—DR. ALBERT RUAULT, in his monograph upon this subject, comes to the following conclusions:

1st. Certain lesions of the mucous membrane lining the nasal passages, such as mucous polypi or hypertrophic rhinitis, can reflexly provoke repeated paroxysms of spasm of the glottis, which, in certain cases, have proved grave enough to necessitate tracheotomy.

2d. These attacks of spasmodic laryngeal dyspnœa can occur at long intervals (as many as twenty years or more intervening) and will baffle all treatment, until attention and medication are directed toward the intranasal trouble which is the cause of the dyspnœa.

3d. It would seem that women, and especially those who are predisposed to attacks of hysteria, are more liable to this affection than men, but instances have occurred in which this trouble showed itself in both men and women without either being of hysterical diathesis.

4th. Spasm of the glottis of nasal origin can attack children as well as adults.

5th. General bronchial spasm is often observed in conjunction with spasm of the glottis, and at times one can observe, between the paroxysm, a more or less spasmodic condition of the entire respiratory tract.

6th. Voice troubles due to phonic laryngeal spasms are also frequent complications of this disease.

7th. The prognosis is very favorable when the cause of the trouble is recognized, but unfavorable if not recognized or if due to a hypertrophic rhinitis.

8th. The diagnosis is to be made by exclusion of all causes known to bring on spasm of the glottis, and by a rhinoscopic examination, aided by the sound and by painting the nasal passages with a solution of cocaine, which in spasm of the glottis of nasal origin, not only overcomes this spasm, but also any spasm of the bronchial tubes.

9th. The treatment of the paroxysm if grave, consists in painting the nasal passages with cocaine, in the administration of chloroform, and finally in the opening of the trachea, if the patient's life is menaced.

10th. The treatment of this affection consists in treating the nasal passages, which are the main seat of the trouble.—*Archives de Laryngol. et Rhinologie*, November 15, 1888.

Phenic Acid in the Treatment of Diseases of the Skin.—DR. BERTOLUS (*Thèse de Lyon*, August, 1888) gives the results of his observations on the therapeutic action of phenic acid in skin diseases, in the following *résumé*.

1st. Taken internally, phenic acid is an excellent remedy for the prurigo of Hebra. Not only does it diminish the pruritus, but acts also upon the papules.

2d. It modifies the exudative eczemas, and those resembling lichen.

3d. It seems to act directly upon the nerve extremities.

It is useless to allow the daily dose to reach above five to eight grains in the young, and between seven to thirteen grains in the adult, as larger doses will not produce any greater benefit, if, in fact, they do not do harm. Small doses can be continued for weeks or months with good results.—*Revue de Thérapeutique*, December 1, 1888.

Helleborein, the glucoside of helleborus niger and helleborus viride, has been used as a substitute for digitalis.

Drs. Victorio and Ehridia have discovered that it is an efficient local anæsthetic; when used in a one per cent. aqueous solution, three or four drops placed in the eye of a dog or rabbit produce anæsthesia of the cornea, lasting about thirty minutes, without producing disagreeable secondary effects.—*Apoth. Ztg.*, 1888; *Amer. Journ. Pharm.*, December, 1888.

Treatment of Ozæna.—Prof. Cozzolino, of Naples, recommends the following treatment for ozæna:

R.—Salol	. . . . .	75 grs.
Boric acid	. . . . .	45 "
Salicylic acid	. . . . .	7½ grs.
Thymol acid	. . . . .	3 "
Powdered talc (℥ij)	. . .	2 drachms.

Or

R.—Bichlor. of mercury	. . .	1½ grs.
Resorcin	. . . . .	22½ "
Benzoic acid	. . . . .	30 "
Boric acid	. . . . .	3 drachms.

These powders are applied to the nasal passages, after having irrigated the same with carbolic or salt water, using, in so doing a Weber's douche. At the same time the following preparation is to be applied to the nose morning and evening:

R.—Distilled water	. . . .	℥iv.
Alcohol	. . . . .	1½ ounces.
Chloride of zinc	. . . .	30 grs.
Thymol acid	. . . .	3 "
Menthol	. . . . .	4½ "

—*Wiener med. Presse*, November 4, 1888.

Fifteen Gold Pieces Swallowed.—Dr. Siotis (*Bull. médicale*) had occasion to treat a patient who had swallowed fifteen gold pieces. The patient complained of great pain in the epigastric region. On auscultation, the patient making some motion, one could plainly hear the noise made by the clashing of the money.

The administration of purgatives was followed with negative results. The author then administered pills containing laudanum and belladonna, which resulted in the finding of three of the fifteen gold pieces in the evacuation the following morning. The next day four more pieces were discharged; a severe pain was felt in the right iliac fossa, percussion over which gave forth a metallic sound. By degrees the rest of the money was evacuated, and the patient made a rapid recovery.

This case is interesting, first, on account of the number of pieces swallowed, and second, in that it demonstrated that where cathartics have to be discarded, belladonna and laudanum give the best results.—*L'Abeille Médicale*, December 3, 1888.

Creasote in the Treatment of Phthisis Pulmonalis.—Dr. Austin Flint, in a paper upon creasote in the treatment of phthisis pulmonalis, presents the following conclusions based on ten cases treated in his service during the past summer at Bellevue Hospital, with inhalations of creasote by a method suggested by Dr. Beverley Robinson. The improvement noted in these cases, when Dr. Flint took charge of the wards, was so considerable that he directed the treatment to be employed in all the cases of phthisis pulmonalis in the male wards, with the exception of a few in the last stages of the disease. This report will be read with interest in connection with Dr. Robinson's paper in the number of *The American Journal of the Medical Sciences* for January, 1889.

The records of ten cases reported show that creasote by the stomach and the inhalations, in cases of solidification without cavities, effect prompt and decided improvement in all phthisical symptoms, with increase in appetite, weight, and strength, even with surroundings much less favorable than would obtain in many cases in private practice.

In cases with small cavities much less improvement is to be looked for, but some benefit may be expected.

In cases with large cavities the treatment seems to have little more than a palliative influence.

The observations here recorded are defective as regards the influenee of the treatment upon the bacilli. In one case, with large cavities, it was noted that the number of bacilli was diminished. No other examinations for bacilli were made during or after treatment.

No estimate was made of the relative value of creasote taken into the stomach. As regards the inhalations, it is assumed that the chief benefit was derived from the creasote, the spirit of chloroform and the alcohol rendering this agent more volatile, and soothing the mucous surfaces. The inhaled vapor undoubtedly penetrated by diffusion as far as the air-cells. It is by diffusion that fresh air, anæsthetic vapors, etc., penetrate the lungs, and cases of pneumonokoniosis illustrate the fact that even solid particles may be carried to the pulmonary vesicles.

Dr. Flint has employed the method of inhalation here described, conjoined with other treatment, in private practice, with good results. In a case of irritative cough of several months' standing, with slight bronchitis and emphysema, but no signs of phthisis, which resisted ordinary treatment, three inhalations produced complete relief, and the cough had not reappeared at the end of four weeks.—*New York Medical Journal*, Dec. 8, 1888.

For Uterine Hemorrhage.—

R.—Extract of Indian hemp	. .	7½ grs.
Fluid extract of ergot	. .	1 drachm.
Fluid extract of hamamelis, Tr. of cinnamon	. .	āā ½ ounce.—M.

Sig. One teaspoonful three times daily.—*Revue de Thérapeutique*, December 1, 1888.

Simple Test for Arsenic.—To the suspected liquid is added, in a test tube, a solution of caustic potash or soda, and then a fragment of aluminium. The mouth of the tube is then closed with paper moistened with a solution of nitrate of silver. If arsenic be present, the paper turns black. Aluminium is preferable to zinc, for the latter may contain arsenic, whilst aluminium is always free from it.—*Farm. Ital.*; *Arch. de Pharm.*; *Amer. Journal Pharm.* December, 1888.

Magnesium-silicate in Chronic Diarrhœa.—This preparation is administered by Dr. Debove, in twenty-five to sixty grain doses. In the diarrhœa of phthisis, if given with milk and for a prolonged period, it will overcome the diarrhœa, and improve the appetite and digestion.—*Deutsche med. Wochenschrift*, November 22, 1888.

Injections of Lemon-juice in Epistaxis.—After having vainly tried all remedies recommended to overcome

epistaxis, DR. GENEUIL resolved to test the value of lemon-juice. The results obtained were surprising; nasal hemorrhages which had lasted from twelve to fifteen hours, and which had resisted all known hemostatics, were brought under immediate control.

His mode of procedure is as follows: With the aid of a small glass syringe, he first washes the bleeding nasal cavity with fresh water, in order to remove all possible clots, and directly afterward injects a syringeful of fresh lemon-juice. Within less than two minutes hemorrhage ceases; if not, the injection is repeated.

The author does not attribute the resultant good action to citric acid (as he, on two occasions, made use of a concentrated solution of citric acid with negative results), but rather to the *ensemble* of substances contained in the lemon.—*Bulletin de Thérapeutique.*

Accidental Rashes in Typhoid Fever.—In a paper upon this subject read before the Section of Medicine of the Royal Academy of Medicine in Ireland, DR. JOHN WILLIAM MOORE sums up his conclusions as follows:

1. Not infrequently, in the course of typhoid fever, an adventitious eruption occurs, either miliary, urticarious, or erythematous.

2. When this happens, a wrong diagnosis of typhus, measles, or scarlatina respectively may be made, if account is not taken of the absence of the other objective and subjective symptoms of these diseases.

3. The erythematous rash is the most puzzling of all; but the prodromata of scarlet fever are absent, nor is the typical course of that disease observed.

4. This erythema scarlatiniforme is most likely to show itself at the end of the first, or in the third, week of typhoid fever.

5. In the former case, it probably depends on a reactive inhibition of the vaso-motor system of nerves; in the latter, on septicæmia, or secondary blood-poisoning; or both these causes may be present together.

6. The cases in which this rash appears are often severe; but its development is important rather from a diagnostic than from a prognostic point of view.

7. Hence, no special line of treatment is required beyond that already employed for the safe conduct of the patient through the fever.—*Dublin Journal of Medical Science*, December, 1888.

Diphtheritic Conjunctivitis.—DR. ABADIE speaks of the efficacy of lemon juice, as recommended by Dr. Fienzal in the treatment of diphtheritic conjunctivitis, of which affection he had lately three cases to treat. Being not then acquainted with the powerful action of lemon juice, he tried the juice in one case, and antiseptics, galvanocautery, and iodoform in the remaining two cases. It was not long before he was convinced that lemon juice held the same place as a specific for diphtheritic conjunctivitis as does nitrate of silver in purulent ophthalmia. —*Bulletin Gén. de Therapeutique*, November 30, 1888.

Spasmodic Cough resembling Whooping-cough, cured by Chloride of Methyl.—DR. GAREL (*Annales des Mal. du Larynx*, etc., August, 1888) reports the case of a girl thirteen years of age, affected with spasmodic cough. The voice was hoarse, the vocal cords rosy red, the glottic functions appeared normal. Different medicaments, especially antispasmodics, had been employed without effect. A strong spray of chloride of methyl, applied to the neck and the upper part of the back and anterior surface of the neck cured the condition.—*Journal of Laryng. and Rhinology*, December, 1888.

Terpin in Bronchitis.—This remedy seems to have been largely prescribed of late by Parisian physicians. CHÉRON'S preparation has been most frequently used; its formula is given as follows in the *Monde Pharm.* of October 5th:

R.—Terpin . . . . . 75 grains.
Glycerin . . . .
Alcohol (of 95 per cent.) } āā 2–2½ ounces.
Syrup of honey . .
Vanillin . . . . . 4 grains.—M.

One tablespoonful contains about seven grains of terpin. Two tablespoonfuls are given daily to loosen and finally diminish expectoration. In the above doses it is not liable to cause gastric disturbance, especially if given after meals.—*Amer. Journal of Pharm.*, December, 1888.

The Biniodide of Mercury in Ophthalmic Surgery in New York.—MR. DAVID WEBSTER writes to the *International Journal of Surgery*, October, 1888, that the use of bichloride of mercury solutions in ophthalmic surgery has been abandoned at the Manhattan Eye and Ear Hospital, on account of corneal opacities following a certain number of cataract operations wherein those solutions were employed. The surgeon of the Royal Ophthalmic Hospital about the same time reported a similar experience. In March last, he gave up the bichloride in surgical cases having corneal relations, and now uses Panas' fluid in all iridectomies and cataract extractions. The formula for this fluid is biniodide of mercury 1 part, absolute alcohol 400 parts, pure water 20,000 parts. The results under this plan have been unusually satisfactory.

Treatment of Scarlatinal Diphtheria.—PROFESSOR O. HENBUER, of Leipzig, treats the diphtheria of scarlet fever with injections of three to five per cent. solutions of carbolic acid into the tissue of the tonsils from which it passes into the lymphatics. The injections are to be continued until the lymphatics are reduced in size and the temperature has fallen nearly to normal.—*Med. Chirurg. Rundschau*, December 1, 1888.

Myrtol in Tuberculosis.—DR. EICHHORST recommends the internal administration of myrtol to overcome putrefactive processes of the air-passages. This preparation is administered in two grain capsules, two of which are taken every two hours. It can be continued for weeks, without causing any bad after-effects. Not only does it ameliorate the gangrenous odor of the expectoration, but diminishes also the quantity of the expectorated material. It does not stay the progress of the tuberculosis.—*Münchener med. Wochenschrift*, November 27, 1888.

For Dysmenorrhœa.—DR. J. SHAW recommends a mixture of belladonna and hyoscyamus for the relief of dysmenorrhœa. It is particularly in the so-called neuralgic or spasmodic form of the affection that this mixture seems to afford the greatest amount of relief.—*Lancet*, September 22, 1888.

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SATURDAY, DECEMBER 29, 1888.

INDISCRIMINATE LAPAROTOMY.

"A GENERAL Summary of Conclusions from a Second Thousand Abdominal Sections," by LAWSON TAIT (*British Medical Journal*, November 17, 1888), affords interesting material for the consideration of the profession in general as well as the laparotomist. Practitioners who care for the health of families are called upon to treat a considerable number of cases of pelvic or abdominal disease in women, and it not infrequently happens that ordinary methods of treatment fail, and a disease not fully understood and possibly threatening life seems developing. The decision of the time when palliative and expectant treatment is no longer justifiable, and when the pressure of threatened danger is assured, is a difficult problem and generally requires especial skill and experience.

Mr. Tait's results furnish the most favorable showing possible for the radical specialist in gynecology, who does not hesitate to perform laparotomy for diagnostic purposes. The range of his experience has been phenomenal; his results correspond to his experience, and he hopefully draws attention to the diminished mortality of his second series, and admits his improvement in judgment, power of diagnosis, and operative skill with increased experience, with the confident expectation that his gains will continue. Diagnosis by exploratory incision, in Mr. Tait's hands, shows a mortality of 3.7 per cent., while the operative treatment of abdominal and pelvic disease results in 5.3 per cent. mortality.

While these results are a most gratifying exhibition of special scientific work, they should not mislead the profession. If an experience of 2000 operations by an expert is required to obtain these results, the tyro may well hesitate to perform a radical operation until every means of diagnosis at his command has been exhausted, and ability in diagnosis and experience superior to his have been summoned. The brilliancy of such statistics minimizes the technical difficulties to an inexperienced man, who is thereby led to underestimate the responsibility which is first entailed upon him: that of making a correct diagnosis.

To attain skill in treatment a thorough logical analysis of cases from the standpoint of pathology is requisite. A statistical, operative ambition must be subordinate to the less brilliant study of the processes of the disease. The profession must realize that it is not the performance of a given number of laparotomies nor the proprietorship of a certain number of hospital beds devoted to patients treated by laparotomy which constitutes a specialist in gynecology; but diagnostic power, operative skill, and sound judgment, which can only be obtained by special training in early professional life, with a thorough education in the pathology of the regions of the body and organs treated. The possessor of these qualifications will not fail to receive the cooperation of the practitioner and the honorable position which scientific work deserves; his aid will be summoned intelligently and, therefore, reasonably, and the best interests of the profession and the patient will be furthered. In contrast to indiscriminate laparotomy, discriminating laparotomy is one of the brightest laurels of modern medical science, as exemplified by Mr. Tait.

GOVERNMENTAL RELATIONS TO YELLOW FEVER IN FLORIDA.

A BILL has been introduced in the United States Senate authorizing the appointment, under the Marine-Hospital Service, of a special sanitary inspector, known to be an expert in yellow fever and inland quarantine. This proposition appears to emanate from Florida, many of whose citizens are desirous of securing the valuable services of Dr. James Y. Porter in some responsible relation to the sanitary needs of that State.

It is not impossible that this kind of legislation may result in good, but we are persuaded that it is not in this way that the key of the situation, so far

as the prevention of yellow fever is concerned, is to be found. We hold that the right thing to do, that almost the only thing to do, is for the Legislature of Florida to take measures, at the earliest practicable moment, for the establishment of a State Board of Health having ample powers and a liberal endowment. On this point we have already spoken, with some emphasis, in our issue of the 8th instant, stating, in brief, the grounds for this urgent demand in behalf of the welfare of that State and of thousands beyond its boundaries. We take occasion here to add our conviction that if the correct legislation shall be enacted, there will be found in Florida physicians and sanitarians competent to administer it vigorously, intelligently, and with success.

The complete stamping out of yellow fever, the happy issue for which the whole country devoutly prays, will not be accomplished by any half-way measures, but by a thorough observance of the known precepts of sanitary law.

PROFESSOR W. OSLER, of the University of Pennsylvania, last week delivered three lectures on "Cerebral Localization," at the University of Toronto Medical College. The lecture theatre was crowded by the students of the College. The Faculty and many members of the profession were also present at the lectures, which were a most able exposition of the subject. Dr. Osler received an enthusiastic welcome—an ovation in fact—in this University in which he began his medical studies.

A PRESS dispatch states that Dr. James E. Reeves, of Chattanooga, Tennessee, has been studying the tissues of the liver and kidneys from patients who died with yellow fever at Decatur, Alabama, and claims to have discovered a microörganism that closely resembles a specific germ. The finding of such a microörganism, however, is a long way from the demonstration that it is the specific cause of the disease.

ACCORDING to this year's catalogue of the University of Pennsylvania, the number of professors in the Department of Medicine, including the hospital service, is 71, and of students 458. The course in medicine has been partially extended, and the following information concerning the innovation is given: "The course of study earnestly recommended to students extends over four years, but the course is also arranged for three years, at the end of which the degree may be conferred. For the fourth year, almost wholly practical in character, a certificate is granted in addition to the diploma, to those who pass a satisfactory examination in the studies of that year."

WITH profound regret we record the death, on the 20th inst., of Caspar Wister, M.D., of Philadelphia, in the seventy-first year of his age. Dr. Wister was widely known in the profession through his connection with the American Medical Association as its Treasurer and the trusted manager of its finances through the long period of twenty-three years, extending from 1854 to 1877. He was also Treasurer of the International Medical Congress, held at Philadelphia in 1876. He was a man of cultivated mind and scholarly tastes, and was held in the highest respect and esteem by all whose privilege it was to know him.

A DELEGATION of Munich physicians, headed by the burgomasters of that town, recently presented Dr. von Pettenkofer, in honor of his seventieth birthday, with a purse of 10,000 marks, to be devoted to the foundation of a prize, bearing his name, the income of which is to be awarded for original scientific research in hygiene. The city of Leipzig sent the additional sum of 5000 marks for the same purpose. Dr. von Pettenkofer also received congratulations from the Prince of Bavaria, universities, corporations, and numerous friends and eminent personages.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, December 6, 1888.

THE PRESIDENT, T. M. DRYSDALE, M.D., IN THE CHAIR.

DR. WILLIAM GOODELL showed a specimen of what he deemed to be an

EXTRA-UTERINE FŒTATION.

A healthy lady, æt. thirty-three, had been married thirteen years without conceiving. Her catamenia had always been regular up to two months before he saw her, when they were delayed for over two weeks. A few days before they reappeared, she was seized with a violent pain, "like cramps" in the pelvis, "shooting upward like knives." This was followed by syncope. Hypodermatics of morphia were resorted to, and she was left with a pelvic soreness that kept her in bed for several days. During the flow of this delayed period, a second attack of pain occurred analogous to the first, but not quite so severe. In about a week another hemorrhage came on. A few days later, she had a third attack of

pain and of syncope, which took place at night. A third hemorrhage now occurred, which was also followed three days later by a severe pelvic colic. This seized her as she was in the act of getting out of bed. The last attack took place on November 18th, and she was left for several days very weak and nervous. On the 25th, she consulted Dr. Goodell about the pelvic colics, irregular hemorrhages, painful defecation, and occasional pains running down the left leg.

He found a small womb pushed forward and to the right, by a boggy tumor, lying to the left in Douglas's pouch. The diagnosis of extra-uterine fœtation was made; its dangers explained, and an early operation insisted upon. Both the lady and her husband were so shocked by this discovery, and seemed to be so incredulous, that Dr. Goodell deemed it best for them to get the opinion of another physician. He sent them to Dr. Joseph Price, who confirmed the diagnosis.

Very early in the morning of November 29th, while she was in his private hospital, a fifth attack of pain of a "bursting feeling," aroused her out of a sleep. This was followed by faintness. At nine o'clock, about six hours after this attack, laparotomy was performed. As soon as the cavity of the abdomen was opened, a large amount of black blood, of the consistency of thin molasses, welled out of the incision. Several knuckles of intestine were also forced out, which could not be wholly kept in during the operation. The right ovary was sound, but the left could not be discovered. In its place was found an irregular cavity, within which was found a tumor about the size of an egg, containing within its sac layers of coagulated blood. It was attached to the broad ligament, which was tied and cut off. A very large number of old clots and shreds of fibrin were flushed out of the abdominal cavity by means of a syringe, six quarts of water being used for this purpose. A drainage tube was put in and the wound dressed with iodoform gauze. So much hemorrhage occurred later through the tube, that he spent several hours by the side of his patient, fearing it would be needful to reopen the wound. But, by dint of keeping the blood from collecting in the tube, the bleeding points were kept dry, and the hemorrhage ceased spontaneously. The tube was removed on December 3d, and the patient thus far has had an uninterrupted convalescence. Dr. Goodell had not been able to examine the specimens carefully, but Dr. Baldy, who was present at the operation, had cut it open and he would like him to describe it.

DR. BALDY said that the history of the case had been rather typical of extra-uterine pregnancy, and the escape of dark-colored blood from the abdominal incision at the time of the operation seemed to confirm this opinion. The mass, which had been shown, was brought to the surface and cut away, after being tied. This was apparently all that was to come away, there being nothing left but a sac, filled with old blood-clots, which sac was formed by adherent intestines, and uterus, and pelvic walls. The mass itself contained a semi-fluctuant tumor the size of a small egg, which he felt confident contained the fœtus, before it was opened. On being laid open, it appeared like a large blood-clot, parts of which had undergone degeneration, presenting a mottled appearance. A small portion of normal tube seemed to run directly into this mass, and as it reached it, spread its coats out over the mass. The ovary was nowhere to be found. He believed that the mass was a blood-clot, but could not explain its occurrence. The fœtus was not found.

On motion of Dr. Baer, the specimen was referred to the Committee on Morbid Growths.

DR. JOSEPH PRICE read a paper on

TUBAL DISEASE A PRIMARY CAUSE OF INTESTINAL OBSTRUCTION.

In reporting cases he has repeatedly called attention to the frequency of adhesions occurring between the uterine appendages and some parts of the intestines, and his purpose in this brief note was to emphasize the importance of recognizing the danger of obstruction of the intestine arising from inflammatory conditions of the pelvic viscera. In glancing over the cases he has operated on during the past year, he finds that in more than fifteen per cent. there were noted "dense, firm adhesions" between the intestines and uterus and appendages, malignant cases not included. In every case, with a single exception, as far as he could determine from the history, symptoms, and operative developments, the inflammatory conditions causing the adhesions originated in the uterine appendages. He did not intend to discuss the pathology of inflammations in the pelvis, nor to present distinct evidences, nor to cite numerous authors who have recognized these lesions, as Greig-Smith and others, for the few general observations he desired to make. And, first, as to the form or kind of obstruction likely to occur. The inflamed serous surface of the diseased tube, or ovary coming in contact with a loop of intestine, or an edge of omentum, provokes inflammation there, and with characteristic promptitude these surfaces cohere. If the process is not severe and of slight duration, these adhesions may disappear as promptly as they occurred, by the enormous absorptive power of the peritoneum, and hastened by the mild influence of the peristalsis of the bowel. If, however, the inflammation is severe, or assumes a chronic condition, these adhesions gain in extent and strength, and give rise to all the variety of conditions classified by Treves as "strangulation by bands." In most cases in which these adhesions occur, there is a history of constipation. It is probably due as much to the pain caused by defecation as to interference by the condition. Again, the pain is often so great as to mislead the physician into thinking that a more virulent inflammation exists than really does. But the pain is not always proportionate to the amount of mischief. He has seen cases in which a mere omental adhesion has caused most agonizing pain. For instance, he recently saw a case in consultation, a woman who had had the appendages removed for backache, some time before, and who suffered excruciating pain, especially on defecation. In this case, the only lesion found was the omentum firmly adherent to the original incision. The omentum here was much elongated, and the transverse colon was dragged below the level of the umbilicus. In like manner he has seen the omentum adherent over the entire pelvis, dragging the transverse colon so out of place that a twist or kink of the bowel could be very easily found. It is not at all rare to find the vermiform appendix glued fast to the uterine appendages, while almost any loop of the small intestine may become adherent to the inflamed pelvic viscera.

These adhesions vary in extent and density from those that will tear like wet tissue paper, to those so well orga-

nized that it requires the scissors to release them, and it is not rare in pus cases for the bowel to be almost gangrenous about these points of adhesion, and, in fact, to tear through. That adhesions do not cause complete occlusion at the time of their formation, oftener than they appear to, is no reason for regarding them lightly, for Mr. Treves tells us in the series of cases he studied, that the average duration of the interval between the causation and the obstruction was three years; the shortest period being five weeks, and the longest twenty-one years. In view of these general considerations, it is hardly necessary to insist upon the release of the intestine whenever and to whatsoever extent adhesions exist. For if the surgeon leave adhesions when he closes the abdomen, he leaves a probable cause of future serious trouble. Louis reports a case in which an ovarian cyst when emptied by the trocar, so dragged upon an adherent bowel that intestinal obstruction developed. He is prone to believe that some of the deaths from intestinal obstruction after operation, are due to leaving old bowel adhesions undisturbed.

DR. WM. GOODELL said that his experience in ovariotomy, led him to say that it is a mistake to postpone the opening of the bowels to a late period. He used to follow the old plan of not giving a cathartic until the eighth day, but he was confident that he had had death result from this practice in consequence of the formation of intestinal kinks from adhesions, making it impossible for the bowels to be moved. He now, almost always gave an aperient or an enema on the fourth day, and earlier if any symptoms, such as vomiting and tympanites, present themselves.

DR. B. F. BAER said that, up to a few years ago, he had also followed the plan of keeping the bowels confined after laparotomy, but now he had them moved on the second or third day, rarely as late as the fourth day. That good plan of quenching the thirst by allowing a pint of warm water to flow into the rectum, facilitates the passage of flatus and feces. Intestinal obstruction was likely to result, as well as adhesions. But this question must be settled by the requirements of each case. He had a case four years ago, in which very serious collapse occurred at the end of the second day. Stercoraceous vomiting occurred, and large quantities of flatus were passed by the mouth, but none by the anus. These symptoms were thought to be due to obstruction, and reopening was considered, but not done. The patient recovered, although she did not pass flatus for five days. Should such a case occur again, he would open the wound and would have the endorsement of most operators for so doing. Large doses of salines are advised in such cases, but he wondered if there was not some danger of rupture of the bowel in these cases of adhesion after serious operations, and he related the following case: An ovarian cyst was closely adherent to the large intestine for a considerable distance, and on the evening of the third day symptoms of septic peritonitis developed. A large dose of Epsom salts was given. The next morning the general condition was better, but he found that liquid feces were flowing from the wound. He reopened the wound and tried to find the point of rupture and close it with sutures. Even after having enlarged the original opening, the ruptured point could not be found on account of its depth in the pelvis and the amount of lymph thrown out. He then closed the wound, without drainage, but freshened the surface of the drainage tube tract and closed it, hoping that the freshened edges would unite. In two days fecal matter again appeared, symptoms of collapse developed and she was expected to die. She however finally recovered. The fistula has entirely closed. The lesson he learned from the case was, that when rupture of the bowel occurred under similar circumstances, the best plan is to let it alone.

DR. PRICE had referred to two cases in which he reopened the abdomen for pain and found the omentum adherent to the line of incision. It is unfortunate that we do not know of some means to prevent these adhesions, but it is a wonder that they do not more frequently occur in the line of the incision, and to the raw surface left after separating adhesions. He knew of no better way to prevent this accident than by the early use of laxatives. Probably much of the pain complained of after operations is due to adhesion, and it is unfortunate that we should be called upon to reopen the abdomen in order to release them. Would it not be wise to give nature time to adjust matters, since there is danger of the formation of other adhesions from the second operation.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, December 18, 1888.

SECTION ON THEORY AND PRACTICE OF MEDICINE.

R. C. M. PAGE, M.D., CHAIRMAN.

DR. J. C. MINOR read a paper on

THE TREATMENT OF THE ACUTE STAGE OF TRAUMATIC TETANUS.

This, he said, was a study in toxicology, a question of poisons and antidotes, since he assumed at the outset that the disease itself was the manifestation of a poison due to the tetanus germ, and produced by the formation of ptomaines as a sequence of its germ origin. The discoveries of Nicolaier, in 1884, and the subsequent investigations of Carle, Ratione, Rosenbach, Terari, Hocksinger, Shakespeare, and Brieger, had demonstrated that tetanus was a blood disease, infectious, inoculable, and having its origin in a bacillus, and that from germ cultures, at least three poisonous substances or alkaloids could be separated, viz.: *tetanine*, which produces tetanus; *tetanotoxine*, which gives rise to tremors, paralysis, and convulsions; and *spasmotoxine*, which gives rise to tonic and clonic spasms. These facts bearing upon the modern aspect of the etiology and pathology of the disease, served to substantiate the observation that in the treatment of tetanus we had to deal with a toxic condition. As to the prevention of the disease, the fact that a high temperature destroys the tetanus germ pointed to a possible local prophylaxis in the primary dressing of wounds.

The healthy working of a nervous centre, as has been well said, required two equally necessary qualities, namely, a power to act when called into play, and a power of remaining at rest. In tetanus the latter was lost; inaction becoming impossible because excitation was constant. Even when the tonic contractions diminished in force nervous energy accumulated during the remission, to be discharged later on as a paroxysm of increased tension or spasm. The disease has a duration, in average cases, of three or four weeks. There seemed

to be a definite limit to the production of toxic material, and the disease, having run its course, terminated in recovery, under certain conditions. That these conditions are not often fulfilled was shown by the mortality, which Gowers placed at nearly ninety per cent.; a rate that was a sufficient warrant for better and more systematic methods of treatment. The fact that the disease was self-limited should encourage the hope of a successful treatment, provided the patient could be protected against its force for a definite period, and the mortality lists show that this definite period consisted of the first and second weeks of the disease, the acute stage of tetanus. Recovery, therefore, depended mainly upon the treatment during this time.

It was admitted that we could neither eliminate nor destroy the poison of tetanus, and that the disease, once started, was beyond the reach of direct methods of antagonism. But when we consider the limitation of the disease and the fact that its activity was expended upon the cord and medulla, we were led to the inference that if we could so act upon the central nervous system that the force of the disease would be spent upon a benumbed tissue, if we could so modify the functions of the cord as to diminish materially its reflex excitability until the nerve storm has passed, we should accomplish the most essential end of treatment. The problem before us, therefore, was how to put the cord and medulla "in splints," physiologically, to do this in the shortest possible time, and to maintain this condition of modified function for at least two weeks.

Dr. Minor did not believe it possible, except by profound anæsthesia, to obtain complete relaxation of all the muscles in the first period of an acute case of tetanus without incurring as much danger from the remedies used as from the disease. The object of treatment was, not to abolish the manifestations of the disease, but to control them to such a degree as to maintain a relatively safe condition long enough for the disease to expend itself. The effect of the disease upon the muscular system was the main point of clinical significance.

Beginning with mere stiffness of the jaws and neck, the muscular tension increased, and subsequently involved the muscles of the abdomen and chest. At times a sudden increase in the degree of this tension occurred, as a paroxysm or convulsive spasm affecting the whole muscular system, producing opisthotonos or other distortions, and threatening death by asphyxia from tonic contraction of the muscles of inspiration. It was to be noted that one had a period of remission and one of exacerbation, with a certain rhythmic rise and fall of nervous excitability. This condition, during the first or acute stage of the disease was one of increasing violence—the spasms growing more severe, and the remissions shorter or less pronounced, until, in from one to two weeks, the disease culminated in a spasm of extreme violence that usually ended the case. The termination was not always fatal, however, as this might be the critical discharge, from which the patient, if he survived, would pass at once into the declining stage of the disease. Other causes of death might occur in the form of simple exhaustion, cardiac failure, or accidental complications.

It appeared, then, that if one could eliminate these convulsive paroxysms from the disease, it would cease to yield such a frightful mortality, and the aim of our treatment, consequently, should be to prolong the remissions, and modify or absolutely prevent the paroxysms. Now, it was a well-known fact that when the functions of the nervous system were under the control of any agent that modifies them, they were not easily affected by any other agent; and in tetanus we had a toxæmia, of which *tetanine* was the genetic agent. This poison produced a marked influence on the functions of the cord, increasing its reflex excitability, and if we attempted to counteract this effect by agents that depress the functional activity of the cord, we should find that ordinary doses produced little or no effect, because the nervous system was already under the control of a powerful modifier of function. Hence, toxic doses would be required to produce therapeutic effects. On the other hand, if we once obtained control of the nervous system, and maintained that advantage, by using our remedies in doses sufficient for the purpose, neither *tetanine* nor any other agent would easily regain control of the functions thus modified.

Assuming that all remedies useful in the treatment of tetanus must possess the power of depressing the functional activity of the cord, the choice of remedies was not of more importance than the method of using them; and a poor remedy well used was better than the best of remedies inefficiently given. The main object being to intoxicate the spinal cord, so as to depress its normal excitability, it was evident that quite a wide range of drugs was at our service. The ones to which Dr. Minor gave the preference were Calabar bean, chloral, and the bromides, with an occasional resort to chloroform. Each of these remedies, he said, appeared to have a special place and purpose in clinical use. Chloroform, Calabar bean, and chloral were the most efficient in the first period of the disease and at its crisis or climax; while the bromides, and also the salicylates come into use during the declining stage.

In the first stage there are three indications to be fulfilled: (1) to lessen muscular rigidity; (2) to prevent convulsive spasms; and (3) to carry the patient through the crisis. The three remedies mentioned are not equally adapted to the purpose in view. Chloroform, for instance, had only a limited use; but within its range of adaptation its action was unrivalled. It was to be employed in those cases of rapid development, occurring soon after an injury, in which the violence and frequent recurrence of the paroxysms threatened an early and fatal termination. Again, it might be necessary in cases of slower development, in which the disease, either from neglect or inefficient treatment, had been permitted to get under full headway. Under these conditions, chloroform was of immense value. Its action was sure and rapid, and carried to the degree of narcosis it gave us complete control of the functions of the cord, abolished reflex excitability, and held the disease in check. This point attained, anæsthesia was to be continued long enough to transfer the control of the functions of the cord to some other and safe agent. During anæsthesia, then, we might administer chloral, Calabar bean, or any remedy suitable for hypodermatic or rectal use, and, after waiting twenty or thirty minutes for absorption to occur, suspend the chloroform.

Of the two agents mentioned, Calabar bean was preferable, because its action was confined to the same field in which the tetanus poison operated, and it was the nearest approach to a physiological antidote to *tetanine* that was at our command. The variable character of

the drug, as usually found, rendered it very unreliable in practice, however, and it was better to use the salicylate of eserine than to depend upon the solid extract of Calabar bean. Chloral was not so good a remedy, or so perfect an antagonist of tetanine, but it was a better drug, and practically of greater service. If Calabar bean was used, chloral would be needed to supplement its action as the disease approached its climax; while if chloral was used, the bromides would serve in the same relation. As to dosage, we should start with the maximum quantity, and be governed as to its subsequent increase by the effect observed upon the muscles. Verneuil advised doses of not less than ʒj of chloral to adults, and not less than ʒiv daily. He considered it necessary to keep the patient in a kind of continuous coma for at least fifteen days, and then gradually to reduce the amount of chloral daily. It, of course, had its dangers, as well as its advantages, and there was, in fact, no such thing as a perfectly safe method of treating the disease successfully. Twice, Dr. Minor said, he had succeeded in carrying cases to recovery with much smaller doses of chloral than those mentioned. He believed that a semicoma was not the best condition for the tetanine patient, and that smaller doses were equally effective if combined with or supported by the action of other remedies. If about the end of the first week the bromides were superadded to the chloral, we should increase the action of the remedy without adding to the danger of its use.

The use of Calabar bean required far more care and attention to detail than the chloral treatment, and he recommended that the initial dose should not be less than half a grain, if the solid extract was used; the question of repeating this amount or not, being determined by the effect produced. The object was to regulate the doses in such a way as to anticipate the condition of muscular tension, and thus prevent the occurrence of spasms. Under the use of Calabar bean the periodicity naturally incident to the disease became more marked, because the remedy contributed to a more pronounced remission during its action. Two grains of the solid extract might be sufficient to obtain this relief for two hours at a time, during the first week of the disease, but three or four grains were usually necessary before the end of the second week; and the increasing violence of the disease would bring these doses closer together. As the crisis approached, the patient was in great danger from both the disease and the remedy, as both were cumulative in their toxic action; and at this stage both these dangers would be materially lessened by bringing chloral into use, and rapidly diminishing the amount of Calabar bean.

During the period of increase of the disease, no matter what remedy was given, it was necessary to increase the dose in proportion to the work it had to do, and when the crisis came we had to choose between the danger of an excessive dose of our remedy and an excessive dose of *tetanine*. We choose the first, because if toxic symptoms appeared we might antidote them, with the probability that the disease had spent its force at this point. To pass this crisis successfully signified recovery.

Having referred to the toxic symptoms of Calabar bean, and their treatment by atropia and morphia, Dr. Minor said, in conclusion, that to use our remedies timidly was to permit the disease to kill the patient. To use them recklessly was to perform that office ourselves. The impossibilities assumed by the physician in the treatment of traumatic tetanus were precisely the same as those belonging to the surgeon who conducted a dangerous and difficult capital operation. As to the general management of these cases, rest and nourishment were so important in their relation to the successful issue of treatment that, no matter how careful and thorough the therapeutic methods might be, they would certainly fail unless the strength of the patient was properly supported, and his nervous system protected against undue excitement.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, November 26, 1888.

The Vice-President, Charles K. Mills, M.D., in the chair.

Dr. J. P. Crozer Griffith reported a

A CASE OF ARTHRITIC MUSCULAR ATROPHY.

S. K., twenty-two, single, American. Father died of consumption, and a paternal uncle has had rheumatism for the last ten years. In other respects the family history is negative. The patient had typhoid fever when about three years of age. Some time in his fourth year he had a fall, injuring his back; and soon after this a posterior curvature developed, which progressively increased up to the age of fifteen, since which time it has remained stationary. About two years after the commencement of the curvature he became unable to walk, and remained so for two or three years; after this time, however, he was able to walk perfectly well, and to attend to his business, which was that of a huckster. The present illness began about a year ago with a rheumatic inflammation of the left knee, for which local remedies were employed, and which did not hinder him from going about. In a few months, however, all the larger joints grew swollen and painful. Six months ago he became unable to walk, and went to the Hospital at Scranton, where he seemed to get better for about two weeks, but after this little improvement could be noticed. While in this hospital he began to waste, and says that in about two months he was as much atrophied as when Dr. Griffith first saw him. He states distinctly that on entering the hospital his limbs were not at all wasted.

The following brief notes were made upon his case at the time of his admission to the University Hospital, June 13, 1888:

The patient complains of constant pain in the larger joints, increased by motion. He is anæmic, and his face is thin and has a delicate appearance. The arms are much wasted, and are held flexed, being more comfortable in this position. The elbows are swollen and painful and there is a tendency to abrasion from pressure on the condyles. There is some degree of contracture of the flexors of the forearm, especially on the right side. Motion of the shoulder-joints is painful. There is extreme kyphosis, occupying all the lumbar and most of the dorsal regions. The vertabræ are not tender on pressure. The hip-and knee-joints are held flexed, but are not fixed. The left knee-joint is somewhat swollen, the right little if at all so. The legs and thighs are greatly atrophied; the thigh measuring only seven and a half inches at its upper third. The ankle-joints appear nearly free from disease. The patellar reflex could not

be obtained. The examination of the thoracic and abdominal viscera was negative, except for a few râles in the lungs, and a faint systolic murmur in the heart.

The course of the case while in the hospital is interesting, inasmuch as the various plans of treatment tried during the four months appeared to have little or no influence upon the disease.

The diagnosis of the case was, however, of great interest, for atrophy developing so rapidly and reaching such a degree, with the coexistence of a posterior curvature of the spine, raised the question whether the disease of the joints might not be of the nature of a spinal arthropathy. Yet, the long immunity which the patient had enjoyed from any evidences of disease of the nerves or cord, and the manner in which the affection of the joints had developed and progressed, rendered it much more probable that it was of a rheumatic nature, and that the case was a well-marked instance of arthritic muscular atrophy, *i. e.*, as Paget explained it, "a reflex atrophy, due to the disturbance of some nutritive nervous centre irritated by the painful state of the sensitive nerve fibres." Nevertheless, some doubt is thrown upon the genuineness of this case by the presence of decided wasting on the distal sides of the affected joints, and by the absence of patellar reflex, both of these being rather more characteristic of a neuritis, while the reflexes are usually increased in arthritic muscular atrophy. It is possible, however, as Bury has pointed out, that in addition to the joint inflammation, or independently of it, there might have developed a rheumatic neuritis of certain nerves

Dr. F. X. Dercum reported

A CASE OF ARTHRITIC MUSCULAR ATROPHY OF GONORRHŒAL ORIGIN.

H. L., a man aged thirty-six, of average stature and rather slight build, presented himself at the University Hospital with the following history. Fourteen years ago he had a small venereal sore which healed rapidly, was not followed by secondary symptoms and was probably benign in character. Previous to and since this time he had been entirely well. In the middle of April last (1888), however, he contracted gonorrhœa. The attack does not seem to have been of more than ordinary severity and ran an average course. Three weeks after its commencement he noticed great pain and some swelling in the right elbow. One week later the right knee became similarly affected and he was obliged to take to his bed. One after another the various joints of the extremities were attacked though the patient no longer remembers their sequence. He simply tells us that shortly after the appearance of pain in the right knee, both ankles, the opposite knee, both shoulders, and the joints of the left arm were affected

Four weeks after the involvement of the right elbow, wasting of the muscles of the upper arm on the same side was noticed. Next the muscles of the opposite arm and of the legs were observed to be growing smaller. Gradually in an order which the patient unfortunately cannot recall, the bulk of the muscles of the upper and lower extremities were involved.

He was confined to bed some eight weeks, when the pain, in a measure, subsided. It persisted, however, and is still marked at the present time. At first the weakness of the muscles was so great that even walking was impossible. In the beginning of July, however, he had improved so as to be able to take a few steps. Since that time he has gained sufficiently to walk short distances and to ascend a stairway, though the latter is still a difficult feat.

Though the pain in the joints had for a long time been insufficient to interfere with movement, his arms continued until lately to be almost useless. A constant attendance of a relative was necessary to assist him in eating, dressing, and the ordinary acts of life.

His present condition is as follows: All of the muscles of the upper and lower extremities and some of the back appear to have suffered. The wasting is most marked in the shoulders and upper arms. The face has not been attacked. The affection is quite symmetrical except in the back, where there is extreme wasting of the lower portion of the trapezius and the rhomboid muscles of the right side are contracted with but slight wasting of these muscles upon the left. Fibrillary tremors are readily observed in various situations. No change is noted in the myotatic irritability, unless it be that the knee-joint is slightly increased. Electrical examination shows that no qualitative change has taken place. Slight diminution to both currents is, however, noticeable. If the statements of the patient are to be trusted, he is undoubtedly improving. He tells us, for instance, that he has had a distinct gain in the arms during the past month.

Dr. F. X. Dercum also exhibited a patient with

A SUBCUTANEOUS CONNECTIVE TISSUE DYSTROPHY.

This case is one which has been described in full in the *University Medical Magazine*, and it is therefore unnecessary to give the details of it here. It is a case of dystrophy of the connective tissue. Here we have enormous hypertrophy of the connective tissue which is in an embryonal state, with this there are associated many of the symptoms of myxœdema. The woman noticed some three years ago, that the arms were increasing in size. Some six months later she began to have pain in the right arm and this symptom has been confined almost entirely to the right side. The pain is not in the nerve trunks alone, but diffused through the mass of tissue. Upon the right side there are also some anæsthetic patches variable in extent. These are present both on the arm and leg. There are other sensory symptoms, such as impairment of vision, diminution of hearing and decided impairment of taste and smell. These are all most marked on the right side. The muscles of the palm are a little wasted. There are qualitative changes in the reaction to the galvanic current.

The bulk of the enlargement is due to mucous tissue. She is the subject of crises of pain which are similar to those found in myxœdema and these attacks are attended with hardening of the part where the pain is located. There is at present a little mass in the posterior cervical triangle of the right side, which forcibly reminds one of the supra-clavicular swelling described by writers on myxœdema. Dr. Dercum could not feel the thyroid gland. While there is marked dystrophy of the subcutaneous connective tissue and some changes in the muscles, the skin is not involved. This is a distinguishing feature between this case and myxœdema proper. In the early history, however, sweating was scanty or absent. Slowness of thought or slowness of movement are not

marked. There has, however, been decided speech involvement a number of times which has appeared to be associated with the crises. Not only would the neck and arms swell, but the tongue and soft palate would also swell. There has also been bleeding from various mucous surfaces as the mouth, throat, bronchial tubes, and stomach. The case, therefore, presents many of the symptoms of myxœdema. His explanation of the hardening of the tissue, is that there is some obstruction to the lymph outflow. Punctures made during the attacks of pain resulted in the appearance of lymph-like fluid.

Dr. H. C. Wood said that the wasting of muscles about an inflamed joint has long been noted. It is seen in almost every case of chronic rheumatism. Charcot has pointed out that this is independent of the extent of the joint inflammation. It may occur after very slight injuries. It is almost always the extensors that suffer, as was illustrated by the case shown by Dr. Dercum. He is thoroughly in accord with those who insist upon the necessity of amalgamating the various so-called nervous diseases. He thinks that there are very few, possibly not more than eight or nine, organic diseases of the nervous system. We make one disease of chronic inflammation or degeneration of one tract of the cord, and when the same change is found in another tract it is given a different name, or if two of the regions happen to be affected together, we have still another disease. We must, of course, for the sake of convenience, talk about locomotor ataxia and lateral sclerosis, etc. But, in doing so, we must understand that these are not, properly speaking, distinct diseases—but simply clinical groups of cases, each group characterized by certain symptoms due to the original position of the lesion—but the lesion identical in character and occasionally so situated as to make cases whose clinical features partake of those of several groups.

Dr. William Osler regarded one of the cases of Dr. Mills as a characteristic example of amyotrophic lateral sclerosis. The spinal form of progressive muscular atrophy in its later stages, usually shows signs of lateral sclerosis, and the picture presented by the patient of wasted arms and spastic legs is extremely common. In chronic cervical pachymeningitis the clinical features are very similar. The condition of the neck is no evidence that there is anything the matter with the cervical vertebræ.

There is one practical point in regard to the arthritic atrophies. He has frequently seen good results follow the use of massage, electricity, rubbing, and the like, if used early. If, however, the condition is allowed to go on for months, it may, and often does, result in permanent disability and uselessness of the joint.

It is not improbable that the case presented by Dr. Dercum may be allied to reported instances of neuritic and spinal trouble following gonorrhœa. Many years ago, Gull and others called attention to spinal troubles to which they gave the name of reflex paraplegia, in association with genito-urinary disorders. Many of these cases have been shown to be forms of myelitis, such as occur in other microbic affections.

Dr. F. X. Dercum regarded the case which he presented as one of atrophy following gonorrhœal rheumatism. He thought that we must agree that we have two forms of inflammation or degeneration in the cord, one which originates in the connective tissue, and one which originates in the nervous tracts. We are so in the habit of speaking of the inflammation of the columns that we are apt to forget that these affections are really forms of degeneration. Doubtless in these tract degenerations the essential factor is frequently a feeble vitality impressed upon the parts during the development period. We must, he thought, make a distinction between diseases affecting the sensory and those affecting the motor tract, but whether we make a distinction between degeneration of the upper and of the lower segment of the motor tract, seems to him to be immaterial. In tabes dorsalis we have degeneration of the sensory tract, and in the myelopathies degeneration of the motor tracts.

Dr. James Hendrie Lloyd said that Dr. Osler had referred to the view he took of one of the cases presented by Dr. Mills, a traumatic focal lesion with secondary degeneration. If we are to assume that this is a case of amyotrophic lateral sclerosis, it differs from many cases of that affection which he had seen, in its etiology, at least. In this case there was a distinct history of traumatism, the patient being thrown by an explosion upon a pile of iron, striking the back of his neck and his arm. This was followed in a few months by rapid atrophy of all the muscles of the shoulder and arm on both sides. Later, this was followed by paralysis of a peculiar character of the neck muscles. This is followed by a descending degeneration, evidently in the lateral tracts, shown by exaggerated patellar reflex, distinct ankle-clonus and rectus-clonus, without atrophy of the muscles of the legs.

His view is, that there was a local injury of the cervical portion of the cord, causing atrophy of the cells in the anterior cornu, and that possibly from the injury he has had a descending lateral degeneration through the motor tract. There is at present another case, very similar to this one, in the Philadelphia Hospital. It is the case of a man who fell from a scaffold, and has never walked since. He has progessive atrophy of the neck and upper extremities, with the symptoms in the legs of lateral sclerosis. The cause, in his case, is distinct, and can scarely be denied.

CORRESPONDENCE.

ON THE PROPER USE OF THE PERINEAL, OVARIOTOMY, AND OBSTETRIC PADS.

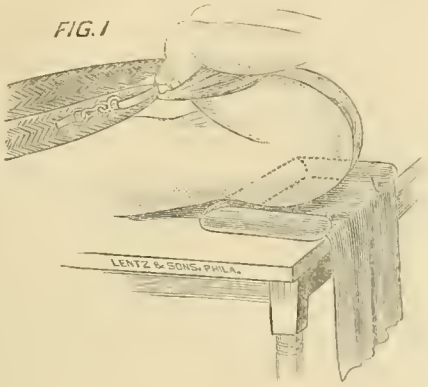
To the Editor of The Medical News,

Sir: I feel that it is important to call attention, through your journal, to the proper methods of using Dr. Kelly's perineal, ovariotomy, and obstetrical pads, having occasionally heard complaints that they have been found unmanageable. This has been due, as I know from observation, to a neglect of attention to a few of the simplest details in their use, as both the perineal and ovariotomy pads are in constant satisfactory use at the Kensington hospital, as well as in many clinics throughout this country and Europe, and the obstetrical pad has for some time been used in all confinements attended by Dr. Kelly and myself, proving itself an indispensable comfort and convenience. I feel, therefore, that my labor is not lost in describing a little more in detail the few points to be observed in using the pads.

The perineal pad should first be stiffly inflated with air, and then placed on the end of the table, with the

full length of the apron hanging vertically from the edge with its lower extremity lying in the bucket on the floor. The patient is placed upon the pad, as shown in Fig. 1,

FIG. 1

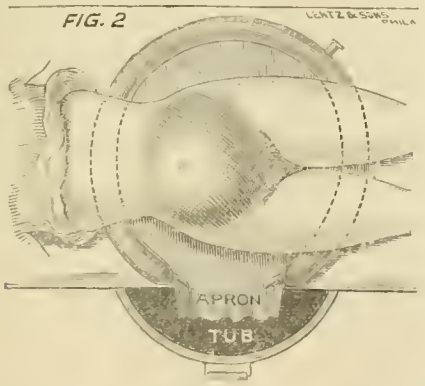


in the lithotomy position, with buttocks brought to the edge of the table, and with the clothes drawn well above the small of the back; enough air is then allowed to escape from the inflated rim by unscrewing the valve, to make it slightly flaccid, when it fits the back neatly, thus preventing the patient from suffering any painful effects from prolonged pressure. All fluid now used on the buttocks or genitals must of necessity run down on the pad, and be directed by the rim, which keeps the clothing and linen dry, on to the little flaps at the edge of the table, which turn it on to the apron and thus into the bucket.

To clean the pad, it should be douched under a faucet and wiped dry with a clean cloth immediately after use, giving especial attention to the folds under the edges of the inflatable rim.

The ovariotomy pad should be placed so as to drain off the side of the table nearest the operator. It thus *drains at right angles* to the patient's body. The apron must *not lie on the table at all*, but hang vertically at the

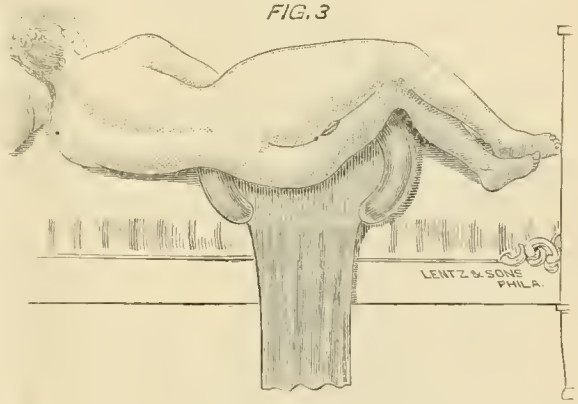
FIG. 2



side from the edge of the table, carrying fluids into the tub beneath. When inflated and properly placed, as in Fig. 2, the patient's abdomen lies in the middle of a large circle built up by the inflated rim on all sides, except the narrow opening at the edge of the table allowing the escape of fluid. Place the patient on the pad, as shown in Fig. 2, with the clothes drawn well up under the shoulders, and the apron hanging vertically as shown, and not diagonally or running the length of the table, there will then be no difficulty in using the pad.

The obstetrical pad is designed for use in confinement cases, and has a higher rim than either the perineal or ovariotomy pad, to compensate for the unevenness of the bed, and ought to be inflated to its full extent. It has proved invaluable, and of the greatest comfort in insuring a clean bed and clean clothes immediately after labor. The patient placed upon her side, or in the dorsal position with the clothes drawn, as shown in Fig. 3.

FIG. 3



above the hips and properly protected by bed-clothes below; the apron hangs over the edge of the bed into a chamber or bucket carrying off liquor amnii, blood, douching, etc., and receiving the child and placenta.

It is of especial service when any obstetrical operation is to be performed, leaving bed and clothes clean and dry, obviating the need of the "change," always troublesome and sometimes even dangerous to the patient, more often incompletely performed and then attended with all the risks of incomplete removal of discharges.

These pads may be obtained of Charles Lentz & Sons, No. 18 North Eleventh Street, Philadelphia.

Hoping that these suggestions may prove of service to the many friends of the Hospital using the pads, I am,

Respectfully yours,

HUNTER ROBB, M.D.,
Assistant-Surgeon to the
Kensington Hospital for Women.

NEWS ITEMS.

New York State Medical Society.—The eighty-second annual meeting of the New York State Medical Society will be held in the city of Albany, on Tuesday, Wednesday, and Thursday, February 5, 6, and 7, 1889.

The following papers have been promised. It will greatly facilitate the labors of the Business Committee if members or delegates desiring to read papers will immediately forward their names, with the titles of their proposed articles, to Dr. D. B. St. John Roosa, 20 East Thirtieth Street, New York, Chairman of the Business Committee:

"The Etiology of Croupous Pneumonia," by George M. Sternberg, U. S. A.

"A Clinical Study on Alopecia Areata and its Treatment," by L. Duncan Bulkley.

"Chronic Headache," by C. L. Dana.

"Vertigo, its Causation and Therapeutics," by J. Leonard Corning.

"The Medical Treatment of Diseases of the Urinary Organs in Children," by A. Jacobi.

"The Treatment of Typhoid Fever," S. S. Burt.

"Management of Cardiac Dilatation, based on its Etiology," by A. L. Loomis.

"The Municipal Control of Diphtheria," by Charles Storer.

"The Prevention of Summer Diarrhœa among Infants Viewed in the Light of the Lesions," by L. Emmet Holt.

"Some Sanitary Suggestions," by L. E. Felton.

"Diagnostic Value of Spinal Rotation," by Bernard Bartow.

"The Uses of Galvanism in Gynecology," by W. E. Ford.

"The Management of Hip-joint Disease," by A. M. Phelps.

"Treatment of Hypertrophies at the Base of the Tongue," by W. C. Phillips.

"Recent Advances in the Treatment of Hernia," by W. B. DeGarmo.

"A Plea for the Employment of Köller's Method," by C. A. Powers.

"The Orthopedic Treatment of Tubercular Disease of the Knee in Children," by V. P. Gibney.

"A Contribution to Surgery," by L. S. Pilcher.

"Contribution to Surgery of the Spine," by Robert Abbe.

"The Disorders of Menstruation," by Andrew F. Currier.

"The Treatment of Acute Inflammation of the Middle Ear," by Gorham Bacon.

"Operative Treatment of an Hyperostosis of the External Auditory Canal," by T. R. Pooley.

"The Use of Prismatic Spectacles for the Relief of Asthenopia caused by Insufficiency of the Ocular Muscles, with Reports of Cases," by D. Webster.

"Considerations Concerning the Operation for Hard Cataract," by Henry D. Noyes.

"Membranous Rhinitis," by Frank H. Potter.

"The Spectroscopic Examination of the Blood and Certain Diseases of the Eye," by Lucius Howe.

"Purulent Conjunctivitis and Blindness in the State of New York," by Lucius Howe.

Titles unannounced: W. S. Ely, George H. Fox, E. Gruening, Edward H. Parker, James B. Hunter.

The names of those who have promised to take part in the discussions will be announced later.

A Hospital built by Verdi.—The *Gazzetta Musicale* of Milan contains an interesting account of a hospital recently opened at Villanova and entirely built and supported by Verdi, the composer. Villanova is situated about twenty miles from Piacenza and in close vicinity to the Villa di Sant' Agata, the country seat which Verdi has made his home and where he lives in the manner of a farmer, abandoning all music from his thought, and without so much as a piano in his house.

The new hospital, an unpretentious but large building, lies in a commanding situation overlooking the Po and with a distant view of the Apennines. There are two wings—one for women, the other for men, and a separate ward is set aside for contagious cases; there is also a hydropathic establishment, and most elaborate arrangements have been made for the disinfection of linen and other sanitary purposes. An efficient staff of nurses and attendants is also provided, and Signora Verdi has made the housekeeping department her special care. The large sums required have been contributed by Verdi, who has also deposited sufficient funds for the maintenance of the hospital.

The munificence of the great composer is only equalled by his modesty. The opening ceremony, which took place on November 6th, was of the simplest kind, only Verdi and his family, the physician, and the Sindaco of Villanova being present. No speechifying was allowed, Verdi remarking that the only inauguration necessary was the admission of the sick and ailing, twelve of whom were received then and there.

The Sindaco proposed that the new building should be called "Verdi Hospital," but to this also the donor objected, and the name Hospital Villanova was finally adopted.

Therapeutic Value of Odor of Cows.—The *New York Analyst* reports that the supposed remedial agency of the odor of cows and cow-stables in cases of consumption is to be tried at Reinickendorf, near Berlin, on a unique scale. A vast circular building has been erected, in the basement of which several hundred cows will be kept, and the odor of the stables will be conducted to the rooms in the upper stories. In the centre of the building is a large yard, for which a whey-cure, bathing-rooms, etc., are planned.—*Boston Medical and Surgical Journal*, December 6, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 18 TO DECEMBER 24, 1888.

ALEXANDER, CHARLES T., *Lieutenant-Colonel and Surgeon.*—Detailed for duty on the Army Retiring Board, to meet at Vancouver Barracks, Washington Territory, at the call of the president thereof.—Par. 22, *S. O. 292, A. G. O., Washington, D. C*, December 15, 1888.

KILBOURNE, HENRY S., *Captain and Assistant Surgeon.*—Detailed for duty on the Army Retiring Board, to meet at Vancouver Barracks, Washington Territory, at the call of the president thereof.—Par. 22, *S.O. 292, A. G. O., Washington, D. C.*, December 15, 1888.

By direction of the Secretary of War, the leave of absence granted to *Captain and Assistant Surgeon* WILLIAM F. CARTER, S. O. No. 116, November 12, 1888, Department of Texas, is extended five months.—Par. 4, *S. O. 292, A. G. O., Washington*, December 15, 1888.

MCCREERY, GEORGE, *Captain and Assistant Surgeon.*—Is granted leave of absence for one month.—Par 4, *S. O. 265, Headquarters Division of the Atlantic, Governor's Island, New York City*, December 15, 1888.

HOPKINS, WILLIAM E., *Captain and Assistant Surgeon.*—Is detailed as a member of the Army Retiring Board, to meet at San Francisco, California, vice Major and Surgeon Henry E. Tilton, relieved.—Par. 3, *S. O. 294, A. G. O., Washington*, December 18, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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